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A Summary Of

Corn Performance Experiments

in Ohio: 1943 to 1949

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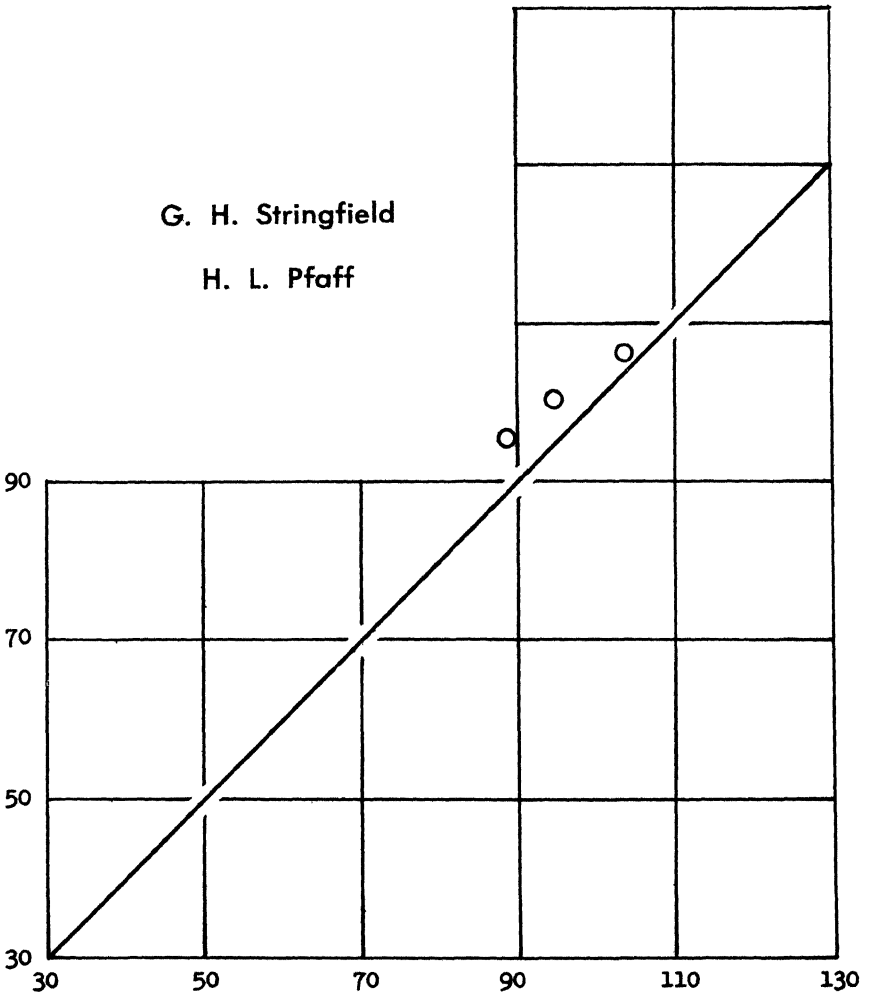


OHIO AGRICULTURAL EXPERIMENT STATION

WOOSTER, OHIO

INDEX OF ENTRIES

* Experimental. Not in commercial production.

A SUMMARY OF CORN PERFORMANCE EXPERIMENTS IN OHIO: 1943 TO 1949 [1]

by

G.H. Stringfield [2] and H.L. Pfaff [3]

This publication brings together accumulated information of corn hybrids of importance or promise in Ohio. Data have been taken from the following:

Ohio Agricultural Experiment Station Special Circular 71, 1946.
Ohio Agricultural Experiment Station Special Circular 77, 1948.
Ohio Agricultural Experiment Station Agronomy Mimeograph Report No. 112, 1948.
Ohio Agricultural Experiment Station Agronomy Mimeograph Report No. 116, 1949.
Report of Cooperative Corn Investigations in Ohio for 1949 by G.H. Stringfield (not published).

There is no assumption that all the good corn hybrids available to Ohio farmers appear in this report. The list of hybrids is too large for accommodation by the testing facilities available to the writers. Furthermore, many of the hybrids reported in the five publications listed were omitted from this report for lack of current interest or promise. The tests in extreme northeastern Ohio and those in the lower Scioto valley are not included in this report.

EXPERIMENTAL PROCEDURES

If the reader prefers first to know what results were obtained rather than how they were obtained, he should turn to the section headed "How to read the charts."

Experimental procedures were described in some detail in the previous publications and will be given here only in a general manner.

1/ The Agronomy Department, Ohio Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture, cooperating.

2/ Senior Agronomist, United States Department of Agriculture and Associate Agronomist, Ohio Agricultural Experiment Station.

3/ Scientific Aid, United States Department of Agriculture and Laboratory Technician, Ohio Agricultural Experiment Station.

Typically, an individual test contained 30 entries that were compared in plots of 2- by 10-hills, 2- by 8-hills, or where harvest was to be with a one-row mechanical picker, the plots were usually 1- by 20-hills. Each entry was replicated four or five times with the sequence of entries being random in each replication.

All grain yields are reported as bushels of shelled grain per acre at 15½ percent of moisture.

Yields were adjusted to a uniform stand within a given test by the following method. A plot with a perfect stand normally would have 80 plants. All plots having 76 to 80 plants were thrown together and the average stand and average yield of this group were computed. The same was done for plots of 71 to 75 plants, 66 to 70 plants, and, in the same manner, down to the lowest stands.

These group yields were then plotted on graph paper to show the general trend of yield in relation to stand. (Stand on the horizontal axis, yield on the vertical.) A free-hand curve was drawn across the graph to express the general trend as closely as possible. In a given test the modal (most frequently occurring) stand might be 65 plants per plot. The curve indicating the trend of yield on stand might show that plots having only 60 plants tended to yield 4 bushels per acre less than the modal plots and that plots having 70 plants tended to yield 2 bushels more than the modal plots. In this test, adjustment to stand would be made by adding 4 bushels to each 60-plant plot and subtracting 2 bushels from each 70-plant plot. Stands other than 60 or 70 would be adjusted in a similar manner but the amount added or subtracted might be different. Modal plots would have zero adjustment.

This adjustment assumes that the objective is to know what each entry would have yielded if seed conditions were alike for all entries. It is an attempt to minimize the influence of unlike seed conditions just as replicating the plots is an attempt to minimize the influence of unlike soil conditions.

Silking dates were determined by counting the number of plants in silk on alternate days during the silking period. By interpolation, the day when half the plants were in silk was calculated for each plot.

A plant was counted as root lodged if at harvesttime it leaned to the extent that the ear was half way or more across a row space.

Stalks broken below the point of ear attachment were counted as broken. Breakage above that point was ignored.

Samples, for the determination of moisture content of grain at harvest, were taken from each harvested plot by removing 2 kernel rows from each of about 12 ears. These were all the ears from systematically chosen hills where harvest was by hand. Twelve ears were taken at random where harvest was mechanical. These samples

were placed in moisture-proof bags for electrical moisture determination after equilibrium within the sample was established.

The data on aphid infestation are the percentages of plants carrying visible aphid colonies.

Smut infection is the percentage of plants having galls on stalk, ear, or tassel, of the approximate volume of a walnut or larger.

Corn borer damage was usually taken by Experiment Station entomologists. It is a visual rating with a score of (1) indicating least damage, (5) most damage, and (2), (3), and (4) indicating the intermediate points.

Leaf blight infection also was given a visual rating with a score of (1) indicating least infection and (5) indicating most.

"Clean ears" indicates the percentage by number of cleanly husked ears after mechanical harvest.

Where percentage values were to be averaged they were first converted to angles. The average angle was then converted back to percentage.

METHODS OF PRESENTING THE DATA

A Northern Ohio Group and a Southern Ohio Group

First the tests were divided into two groups, (1) those in northern Ohio, excluding the extreme northeastern counties, and (2) those in southern Ohio, excluding the first river bottoms of the Ohio, lower Scioto, and their adjacent tributaries.

Control Hybrids: The Standard for Comparison

In the Northern Group, three hybrids, Ohio K24, Ohio W36, and Ohio C38 were uniformly entered in all experiments beginning in 1943. The average performance of these three "controls" was used to measure all other entries. This was the case not only in grain yield, but also in silking date, moisture at harvest, root lodging, stalk breakage, and the other categories.

The controls in the Southern Group were Ohio W36, Ohio C38, and U.S. 13.

Not all hybrids could be entered in each experiment. Direct comparisons were not made between two hybrids if they were not entered in the same experiment. Some experiments averaged less than 50 bushels an acre, others averaged over 100 bushels. Some experiments had little or no lodging, breakage, insect or disease damage,

while other experiments had heavy damage. The comparing of each entry in each category of performance, directly with the controls, was to approach equal opportunity for all competing entries even though growing conditions were greatly different in the various tests.

These direct comparisons of the entry with the control will be found under the listing of each hybrid.

A record of performance is not considered good if it is distinctly poorer than that of the control in comparable experiments. An exception can be made in the case of yield for early hybrids.

In the figures that follow the Index of Entries, each circle is placed around a point showing two yields. The distance toward the right of the graph indicates the yield of the controls, and the distance upward indicates the yield of the listed entry in one experiment. Since the horizontal and vertical scales are the same, it follows that if controls and the entry both yielded the same in a test, the two yields will be indicated by a point exactly on the solid line drawn at a 45 degree angle across the chart.

Likewise, the point will be above the solid line if the entry yielded more than the controls, and it will be below the solid line if the entry yield is less. Furthermore, the higher the level of yield for the experiment the farther the point will be toward the right of the graph.

No charts were made for hybrids appearing in fewer than five tests. The available data for the hybrids with fewer than five tests are presented in tabular form, however, always in direct comparison with the respective controls in comparable experiments.

The Seasonal Requirement of Hybrids Demands Consideration

Since grain yield is so largely a function of the length of time a plant is growing and manufacturing food, it was attempted to compute expected values for yield based on seasonal requirement. Seasonal requirement here means the degree of earliness or lateness.

But there are two standard measures of seasonal requirement; the time of silking, and the moisture in the grain at harvest. The relative silking period can be measured more accurately, and it is an excellent measure for judging which hybrids will first have completed their grain filling periods. When grain filling is complete a hybrid is past danger of frost in the sense that killing the plants will no longer lower the yield. But after frost danger is past, a drying period is required before the ears are ready for safe crib storage. The moisture in the grain at harvest is a better measure for judging which hybrids will first be ready for mechanical harvest and safe storage.

Hybrid A then, might be past frost danger sooner than Hybrid B, but because of more rapid drying, Hybrid B might be ready for safe crib storage sooner. Which is earlier?

Ohio C54 is a good example. Its silking period places it earlier than the control but its moisture at harvesttime places it later. The writers take the view that the seasonal requirement of a hybrid is best judged by the measure that places it in the later category. That means that a slow-drying hybrid would be judged by the moisture at harvest, and a fast-drying hybrid by the time of silking.

A statistical devise known as the regression coefficient was employed to indicate the relative change in grain yield associated with changes in silking date and in moisture at harvest.

For the Northern Ohio group the regression indicated that as the tested hybrids were one day later in silking, they yielded on the average 2.13 bushels an acre more. Also, for each increase of one percent in moisture content at harvest, there was an average increase of 2.18 bushels per acre in yield. These values do not hold for the few hybrids that are too late to complete grain filling.

If a hybrid in the Northern Group averaged one day later in silking than the controls, it was concluded that it should have yielded 2.13 bushels more than the controls. A broken line with shorter segments was drawn as nearly as possible 2.13 bushels above the solid line. This broken line then shows where the points are expected to fall based on the silking date of that entry. For any entry this line will be above or below the solid line as determined by this computation: (Entry silking date minus controls silking date) times 2.13 bushels.

Likewise, another broken line, with longer segments, was drawn to indicate the expected yields based on moisture in the grain at harvest. It's location above or below the solid line is determined by this computation: (Moisture of entry minus moisture of controls) times 2.18 bushels.

For the Southern Group the regressions indicated an expected change in grain yield of 1.54 bushels for each change of one day in silking and of 2.15 bushels for each change of one percent in grain moisture at harvest.

HOW TO READ THE CHARTS

Each point (indiacted by a small circle) shows the yield in bushels per acre of shelled corn at 15½ percent of moisture in one experiment for the hybrid listed at the top of the chart.

The actual yield can be judged by the scale at the left margin.

If the point is above the solid oblique line, the entry yielded more than the average of three control hybrids, i.e., Ohio K24, W36, and C38 for the Northern group, and Ohio W36, C38, and U.S. 13 for the Southern group.

If the point is below the solid line, the entry yielded less than the controls.

Points farther toward the right indicate the productivity level was higher by the increasing height of the solid line.

Points above or below the broken line (shorter segments) show that the entry yielded above or below what is expected of a hybrid of its silking date.

When points are plotted above or below the other broken line (longer segments) it is shown that the entry yielded more or less than is expected of a hybrid of its moisture content at harvest.

If the points are consistently below either of these broken lines, the entry has failed to pass the test for yield efficiency in comparison with competitors of comparable seasonal requirement.

The absence of one of the broken lines means that it so nearly coincided with the solid line that it did not need to be drawn. If the two broken lines fell at the same place, or nearly so, one line of alternately long and short segments was drawn.

THE SIGNIFICANCES OF YIELD DIFFERENCES

The degree of precision in measuring inherent yielding capacity varies from test to test. In general, however, two entries from the same seed lot will differ in yield by as much as nine bushels an acre only about once in 20 trials as a consequence of experimental error. Experimental error arises primarily from variations of soil and stand.

An entry's yield will differ from that of the three controls, solely because of experimental error, by seven bushels an acre about once in 20 trials. It follows that when an entry differs from the controls in one test by as much as seven bushels, it is said that the difference is statistically significant with odds of 19 to 1 against it being a chance difference. Obviously, the difference required for significance decreases as more tests are averaged together.

These relations are now summarized with the right column showing the least significant differences between an entry and the controls for the corresponding numbers of tests indicated in the left column.

No. of tests	Lease significant difference in bushels an acre between an entry and the controls
1	7
2	6
3	5
4	4
6	3
14	2
54	1

Only error within tests is considered in the above computations. Another source of variation in the performance of entries lies in the well established tendency for different hybrids to respond differently as the environment changes. For instance, Hybrid A may tolerate a dry period better than Hybrid B whereas Hybrid B may withstand a heavy August windstorm with less damage than Hybrid A.

GENERAL OBSERVATIONS

Response of Hybrids to Productivity Levels

There is no clear evidence in this report that hybrids of similar seasonal requirement differ greatly in response to changing productivity. In other Ohio studies, a significant differential response was observed but the magnitude was small.

The case is different, however, when early and late hybrids are compared. These charts reveal a definite tendency for late hybrids to yield little or no more than the controls on low soil productivity, but to exceed the controls by wide margins at high productivity. Early hybrids may yield as much or nearly as much as the controls at low soil productivity but fall markedly below at high productivity.

Interpretation of these observations is complicated by the fact that high average productivity was brought about by more favorable and longer growing periods as well as by more productive soil. It follows, however, that the record of a late hybrid would be favored if it was entered mostly in experiments of high average productivity. On the other hand, an early hybrid would appear at a disadvantage under the same circumstances.

RECOMMENDATIONS

Specific recommendations are omitted from this report because they vary from year to year as new experience develops. Recommenda-

tions and lists of seed sources for certified open formula hybrids are available from the Ohio Agricultural Experiment Station and the Ohio Agricultural Extension Service. The closed formula hybrids may or may not be recommended at the present time by the seed companies that supply them.

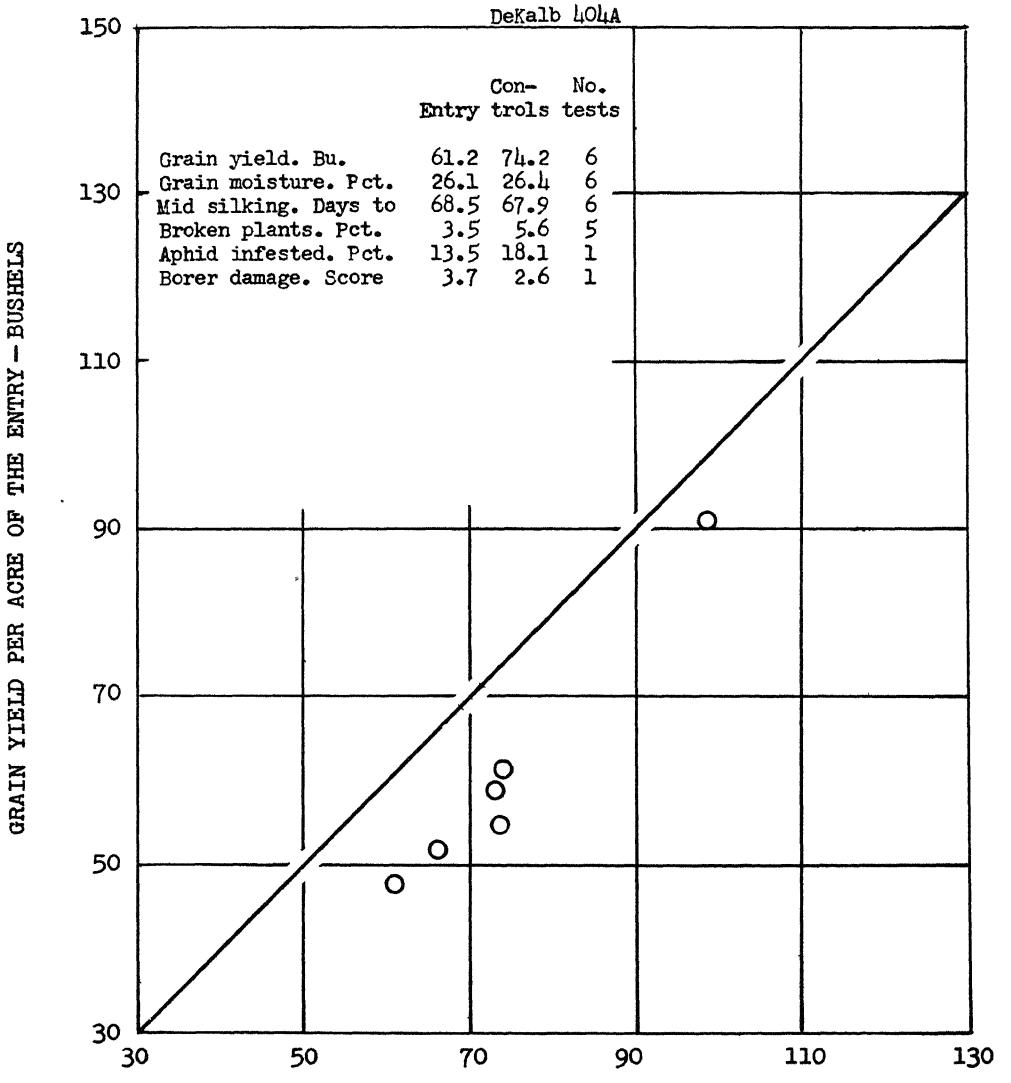
AVAILABILITY OF SEED

In general, the experimental hybrids are not now available in commercial quantities, whereas most of the others are available. Neither the Ohio Agricultural Experiment Station nor the cooperating Division of Cereal Crops and Diseases of the United States Department of Agriculture have hybrid seed corn for sale. Neither do these organizations necessarily have information of the availability of any hybrid reported herein.

Northern Ohio

DeKalb 404A

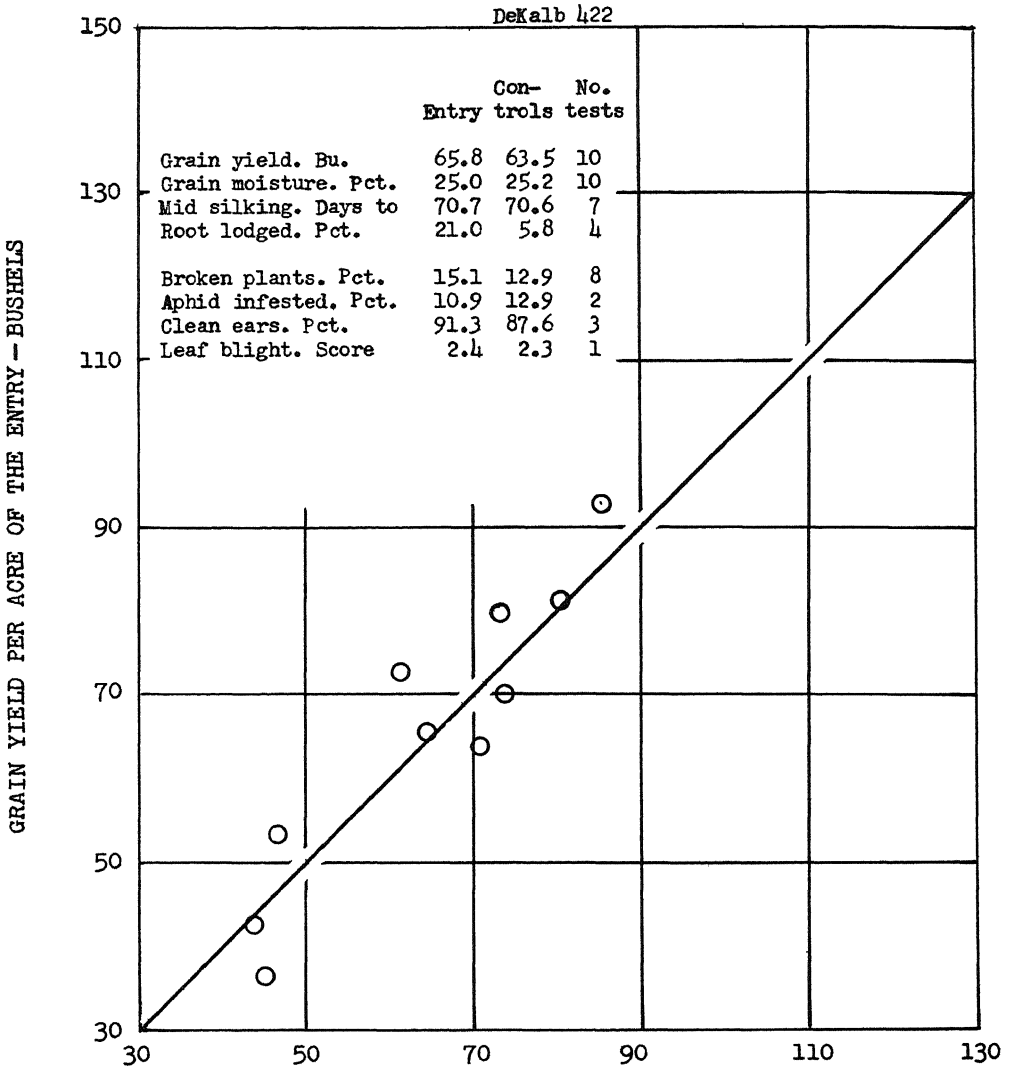
	Entry	Controls	No. tests
Grain yield. Bu.	61.2	74.2	6
Grain moisture. Pct.	26.1	26.4	6
Mid silking. Days to	68.5	67.9	6
Broken plants. Pct.	3.5	5.6	5
Aphid infested. Pct.	13.5	18.1	1
Borer damage. Score	3.7	2.6	1



Northern Ohio

DeKalb 422

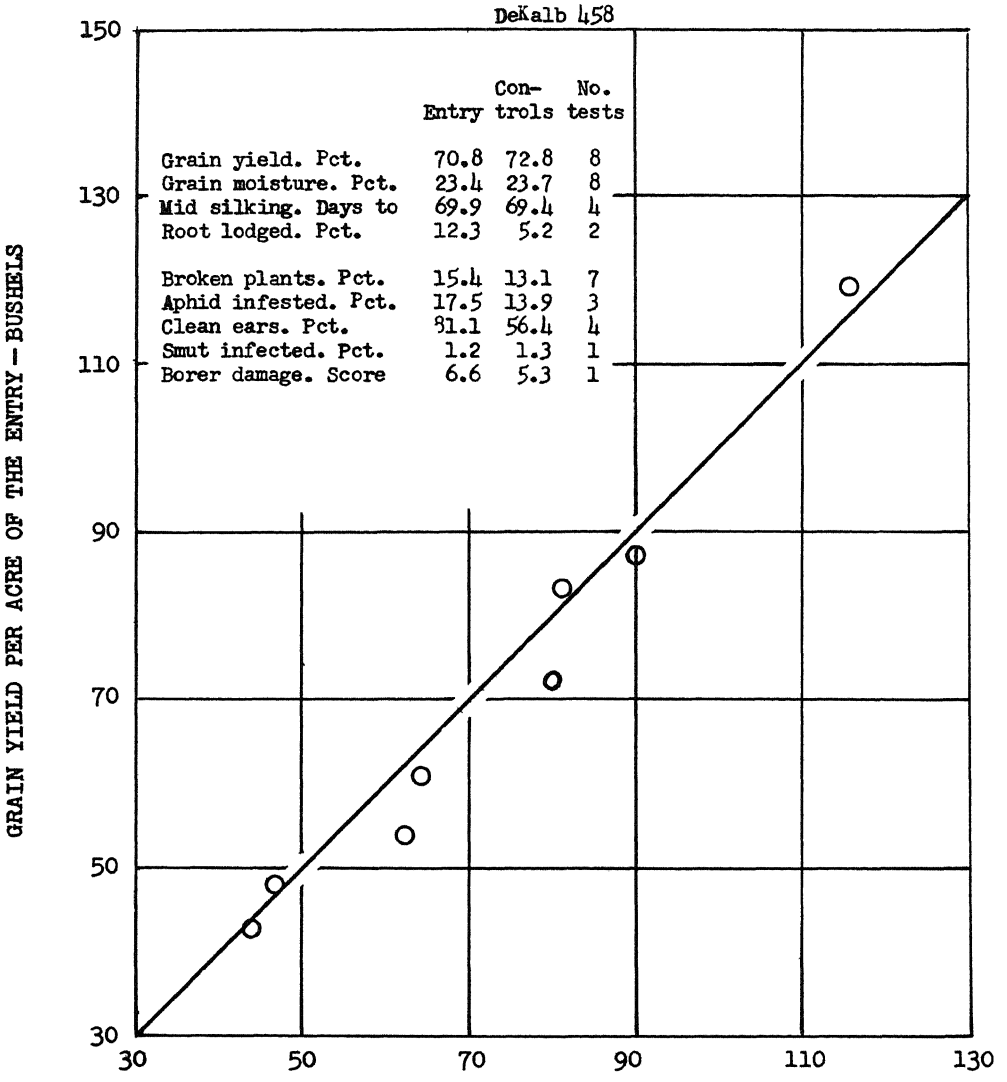
	Entry	Controls	No. tests
Grain yield. Bu.	65.8	63.5	10
Grain moisture. Pct.	25.0	25.2	10
Mid silking. Days to	70.7	70.6	7
Root lodged. Pct.	21.0	5.8	4
Broken plants. Pct.	15.1	12.9	8
Aphid infested. Pct.	10.9	12.9	2
Clean ears. Pct.	91.3	87.6	3
Leaf blight. Score	2.4	2.3	1



Northern Ohio

DeKalb 458

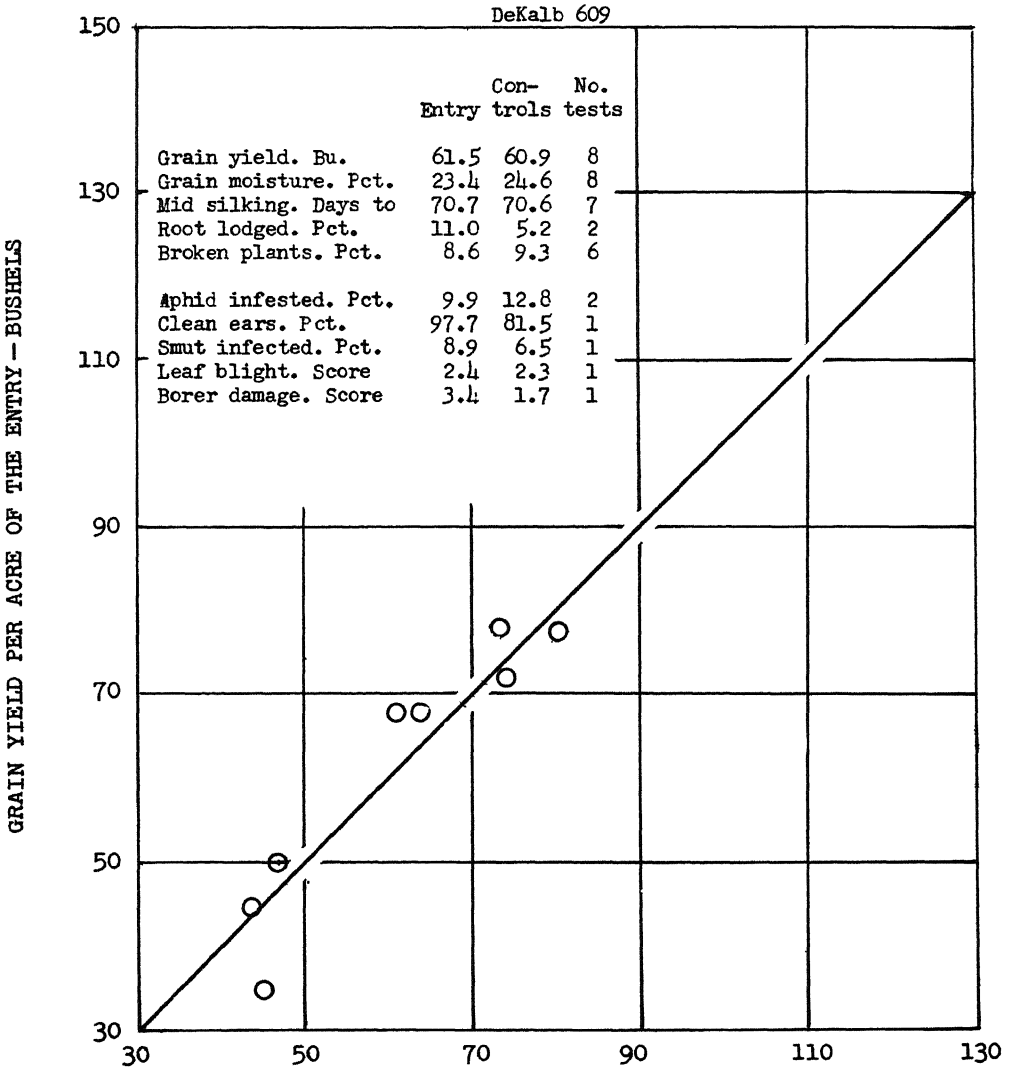
	Entry	Controls	No. tests
Grain yield. Pct.	70.8	72.8	8
Grain moisture. Pct.	23.4	23.7	8
Mid silking. Days to	69.9	69.4	4
Root lodged. Pct.	12.3	5.2	2
Broken plants. Pct.	15.4	13.1	7
Aphid infested. Pct.	17.5	13.9	3
Clean ears. Pct.	81.1	56.4	4
Smut infected. Pct.	1.2	1.3	1
Borer damage. Score	6.6	5.3	1



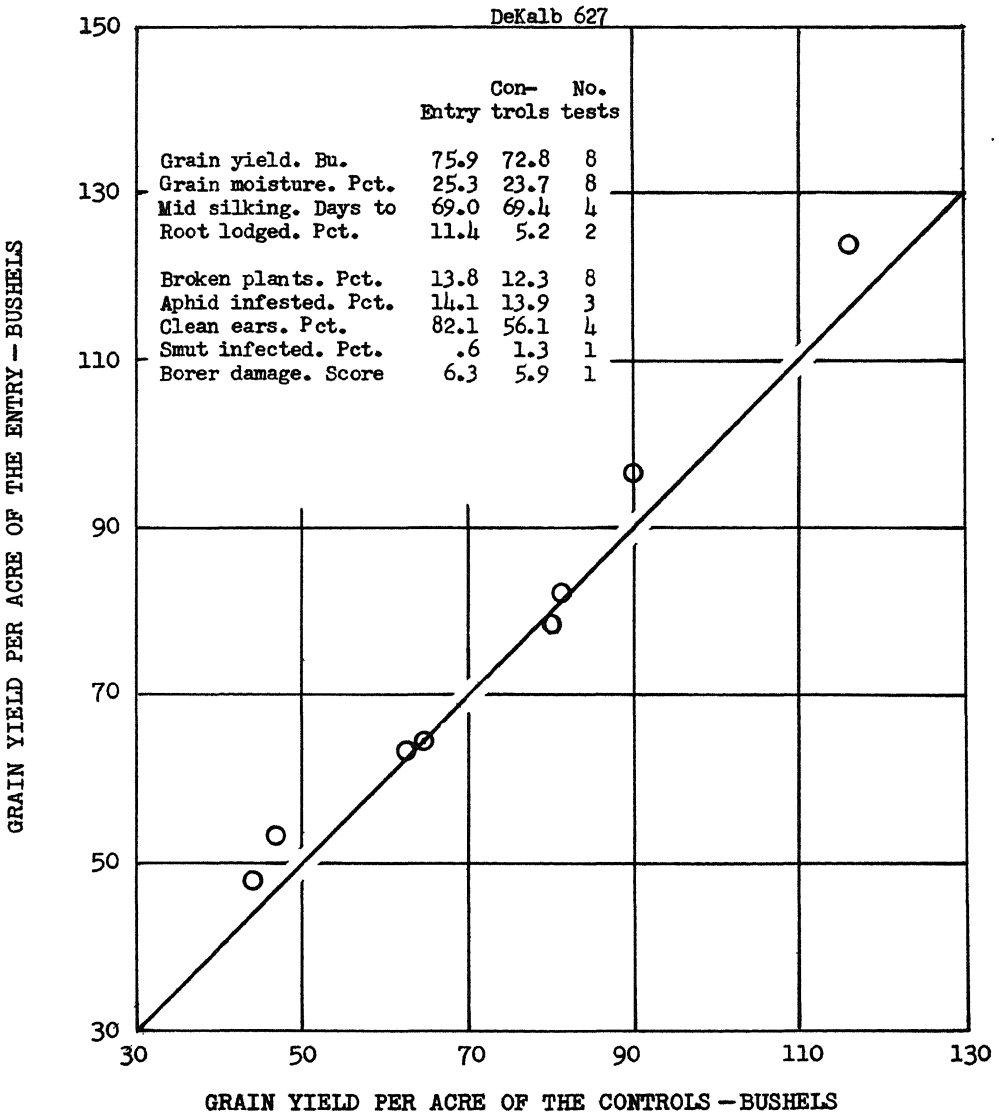
Northern Ohio

DeKalb 609

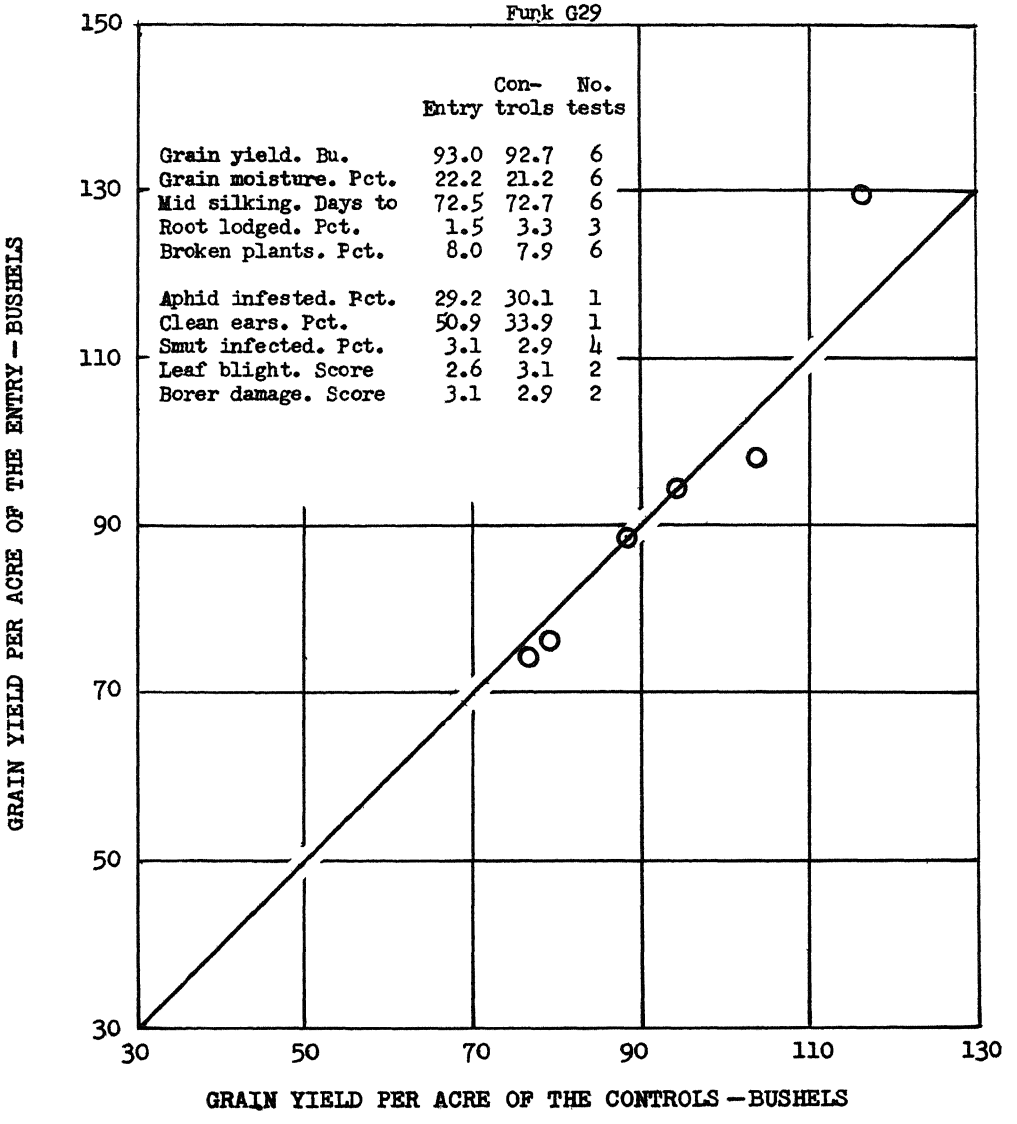
	Entry	Controls	No. tests
Grain yield. Bu.	61.5	60.9	8
Grain moisture. Pct.	23.4	24.6	8
Mid silking. Days to	70.7	70.6	7
Root lodged. Pct.	11.0	5.2	2
Broken plants. Pct.	8.6	9.3	6
Aphid infested. Pct.	9.9	12.8	2
Clean ears. Pct.	97.7	81.5	1
Smut infected. Pct.	8.9	6.5	1
Leaf blight. Score	2.4	2.3	1
Borer damage. Score	3.4	1.7	1



Northern Ohio



Northern Ohio



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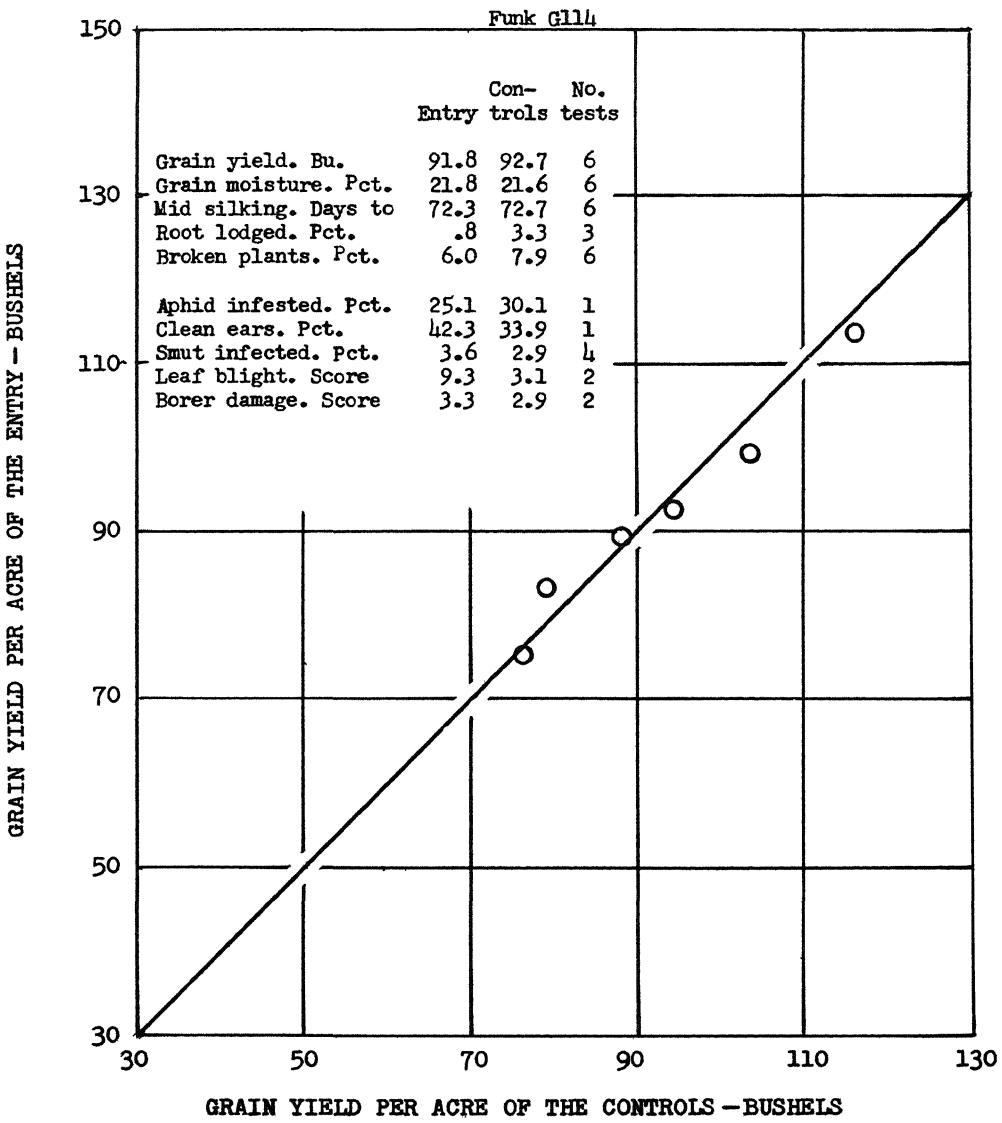

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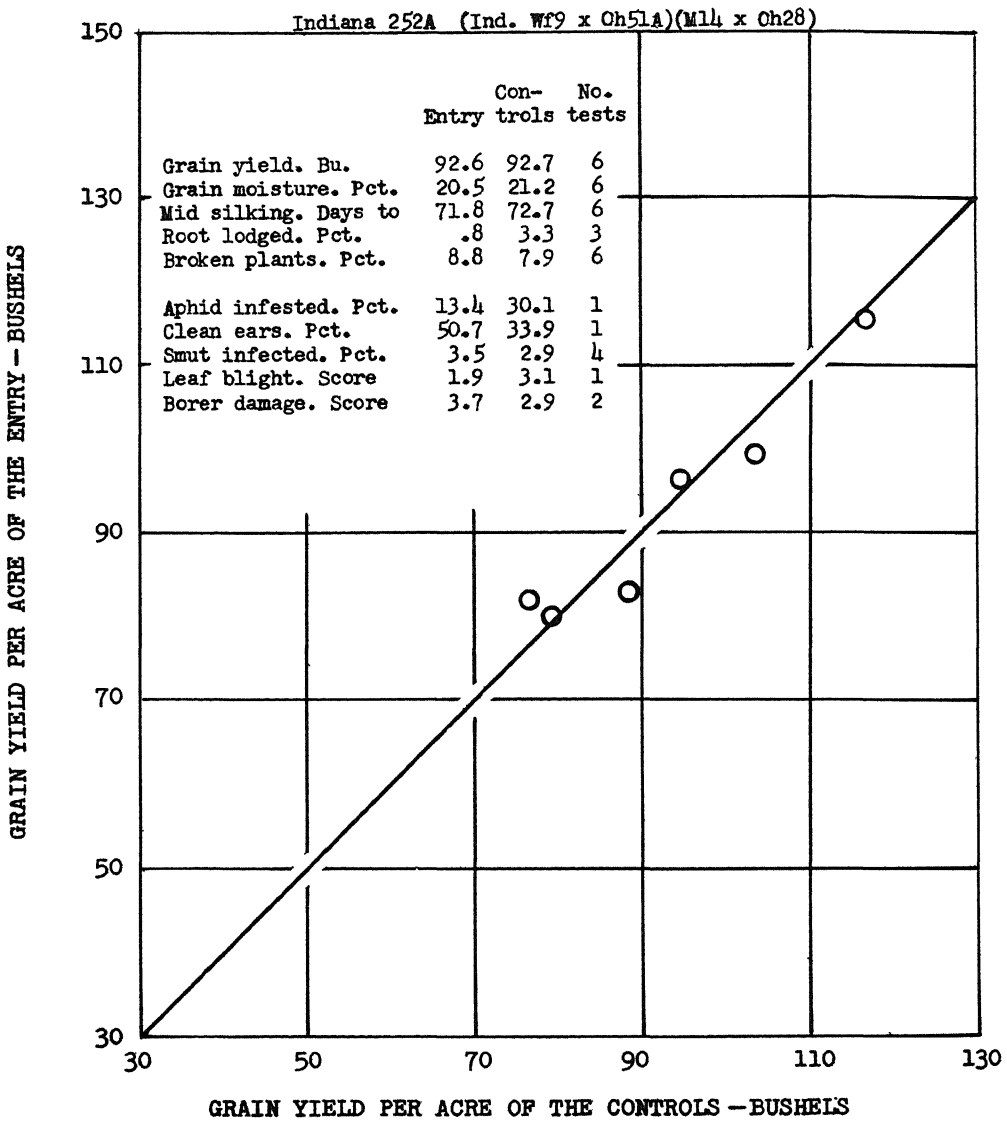
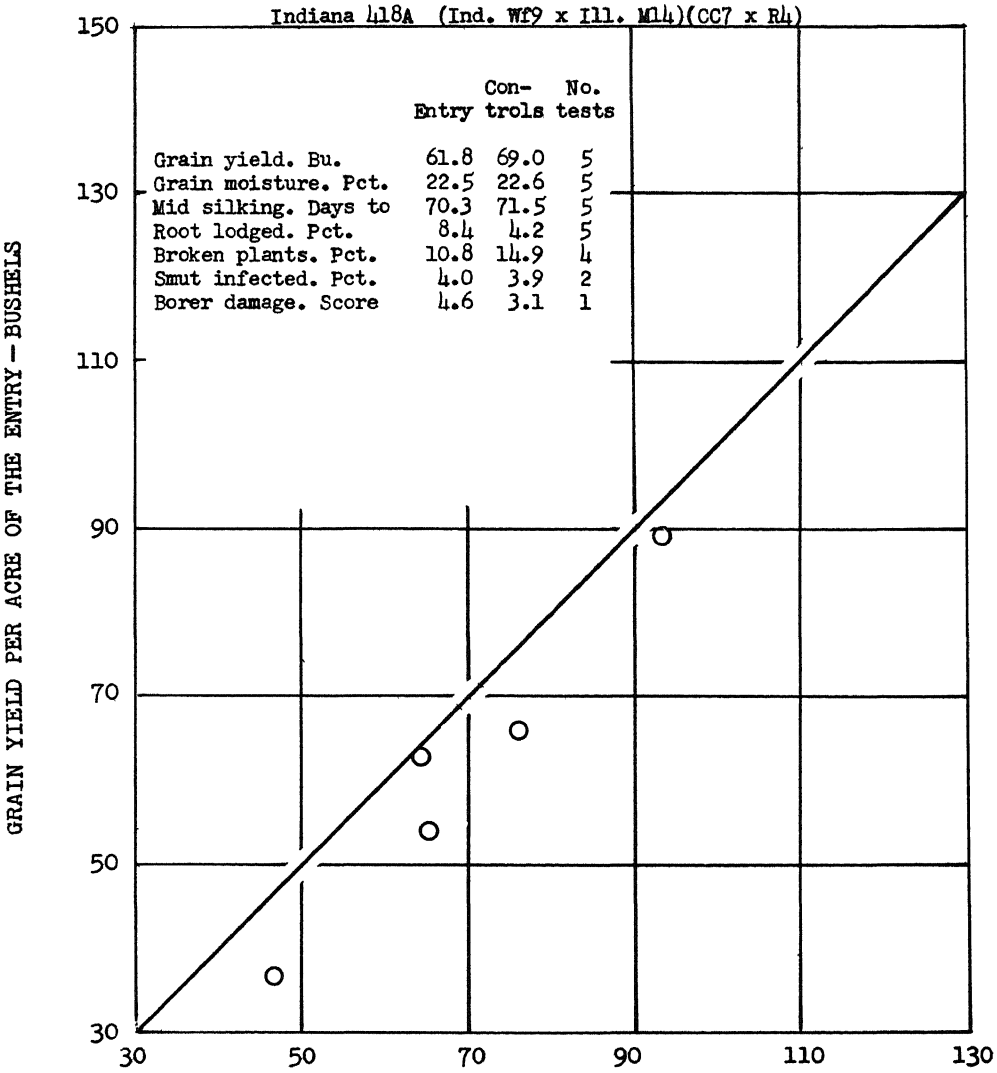


Northern Ohio

Indiana 418A (Ind. Wf9 x Ill. M14)(CC7 x R4)

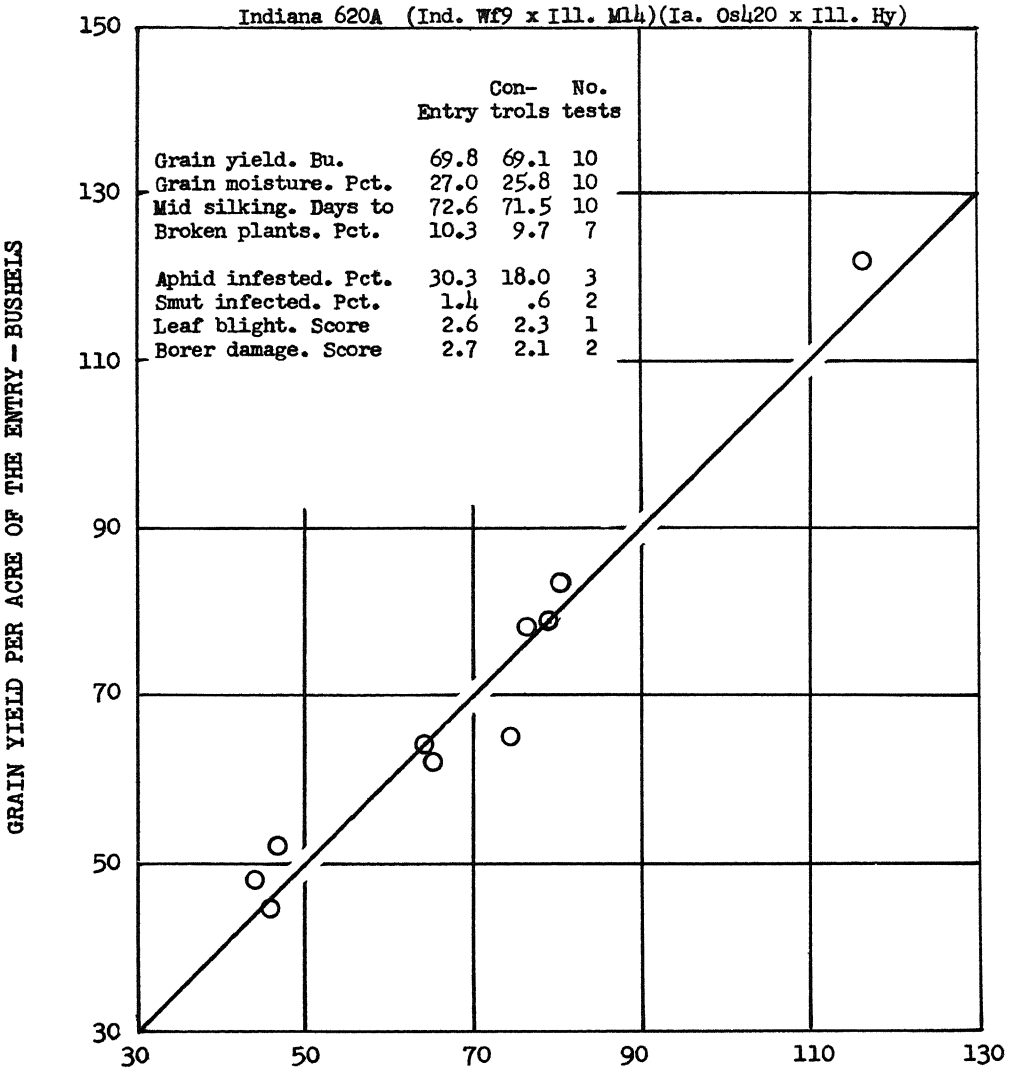
	Entry	Con-trols	No. tests
Grain yield. Bu.	61.8	69.0	5
Grain moisture. Pct.	22.5	22.6	5
Mid silking. Days to	70.3	71.5	5
Root lodged. Pct.	8.4	4.2	5
Broken plants. Pct.	10.8	14.9	4
Smut infected. Pct.	4.0	3.9	2
Borer damage. Score	4.6	3.1	1



Northern Ohio

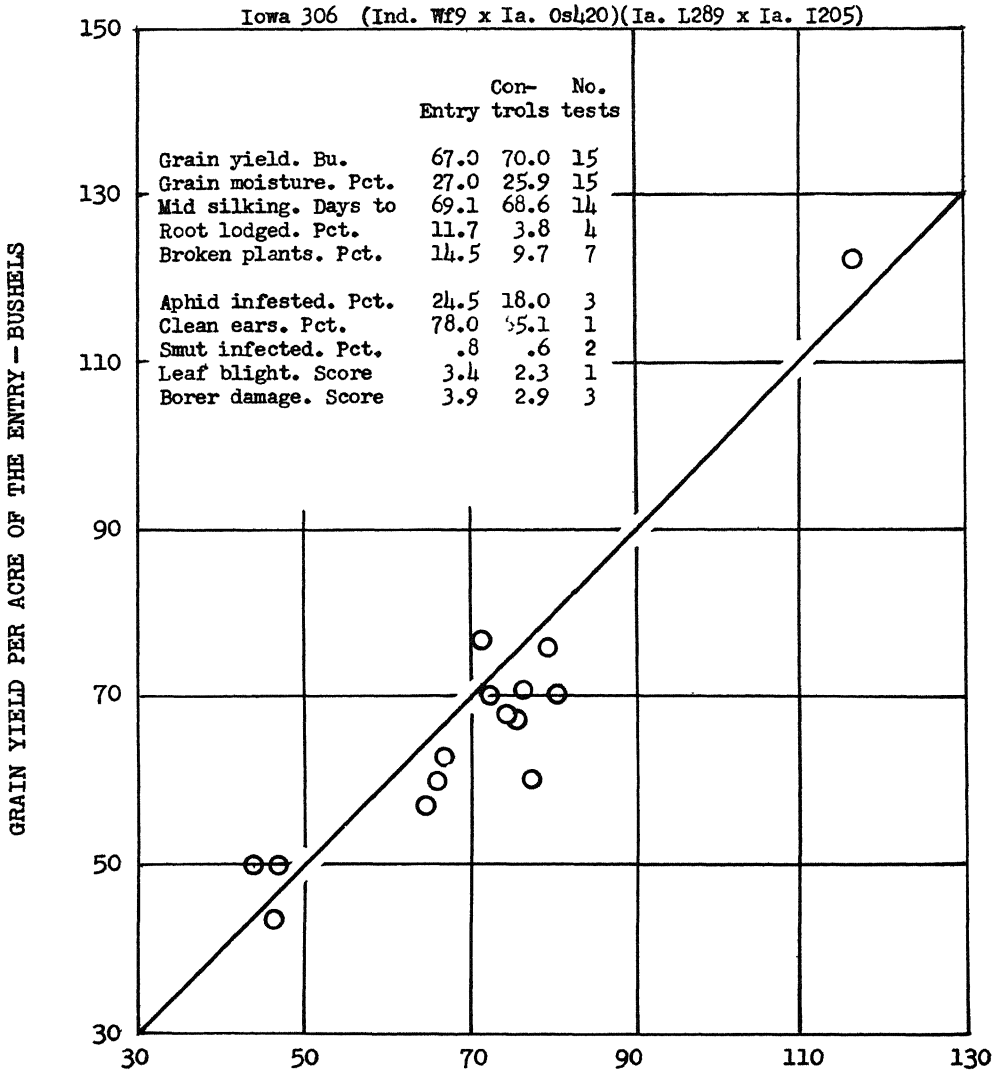
Indiana 620A (Ind. Wf9 x Ill. M14)(Ia. Os420 x Ill. Hy)

	Entry	Controls	No. tests
Grain yield. Bu.	69.8	69.1	10
Grain moisture. Pct.	27.0	25.8	10
Mid silking. Days to	72.6	71.5	10
Broken plants. Pct.	10.3	9.7	7
Aphid infested. Pct.	30.3	18.0	3
Smut infected. Pct.	1.4	.6	2
Leaf blight. Score	2.6	2.3	1
Borer damage. Score	2.7	2.1	2



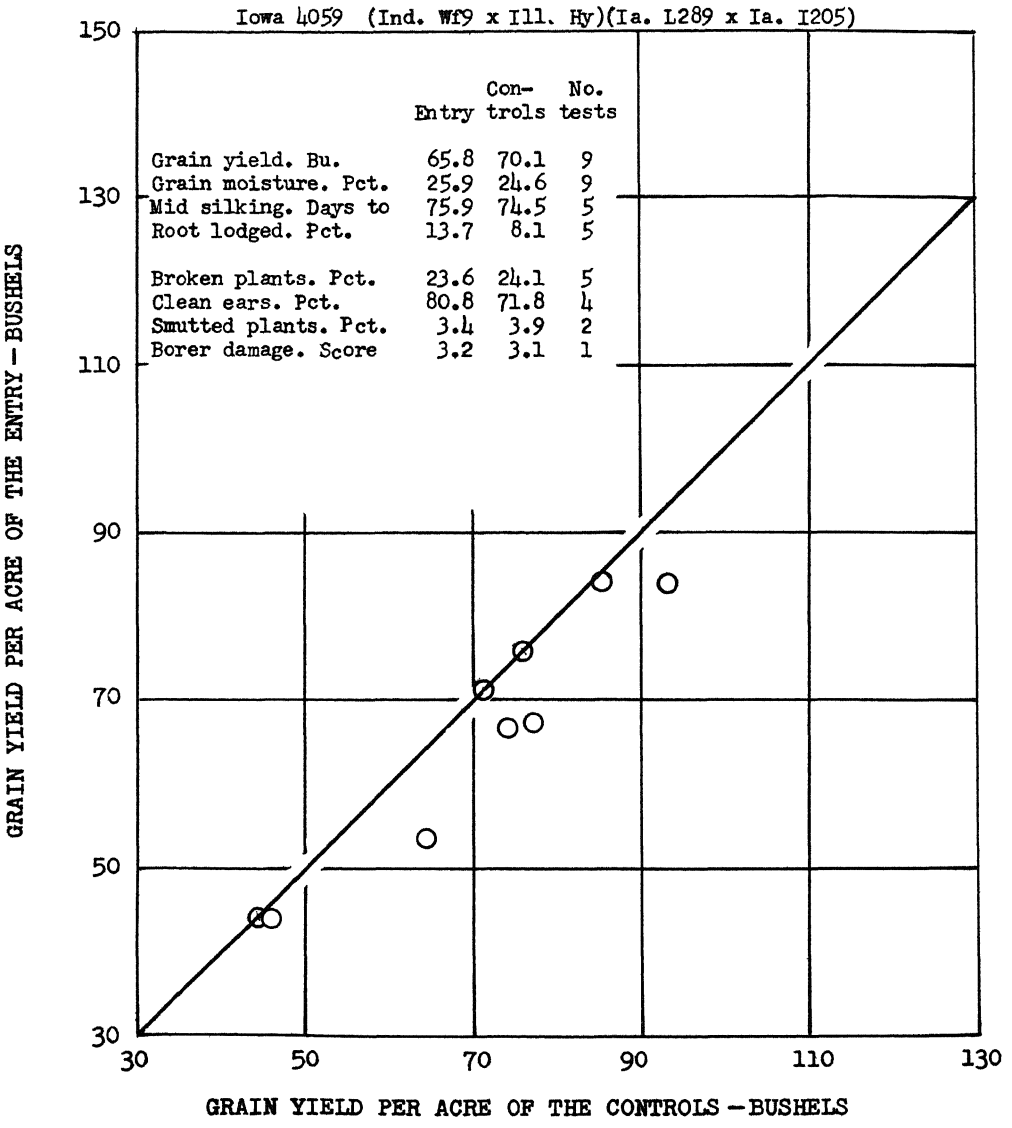
Northern Ohio

Iowa 306 (Ind. Wf9 x Ia. Os420)(Ia. L289 x Ia. I205)

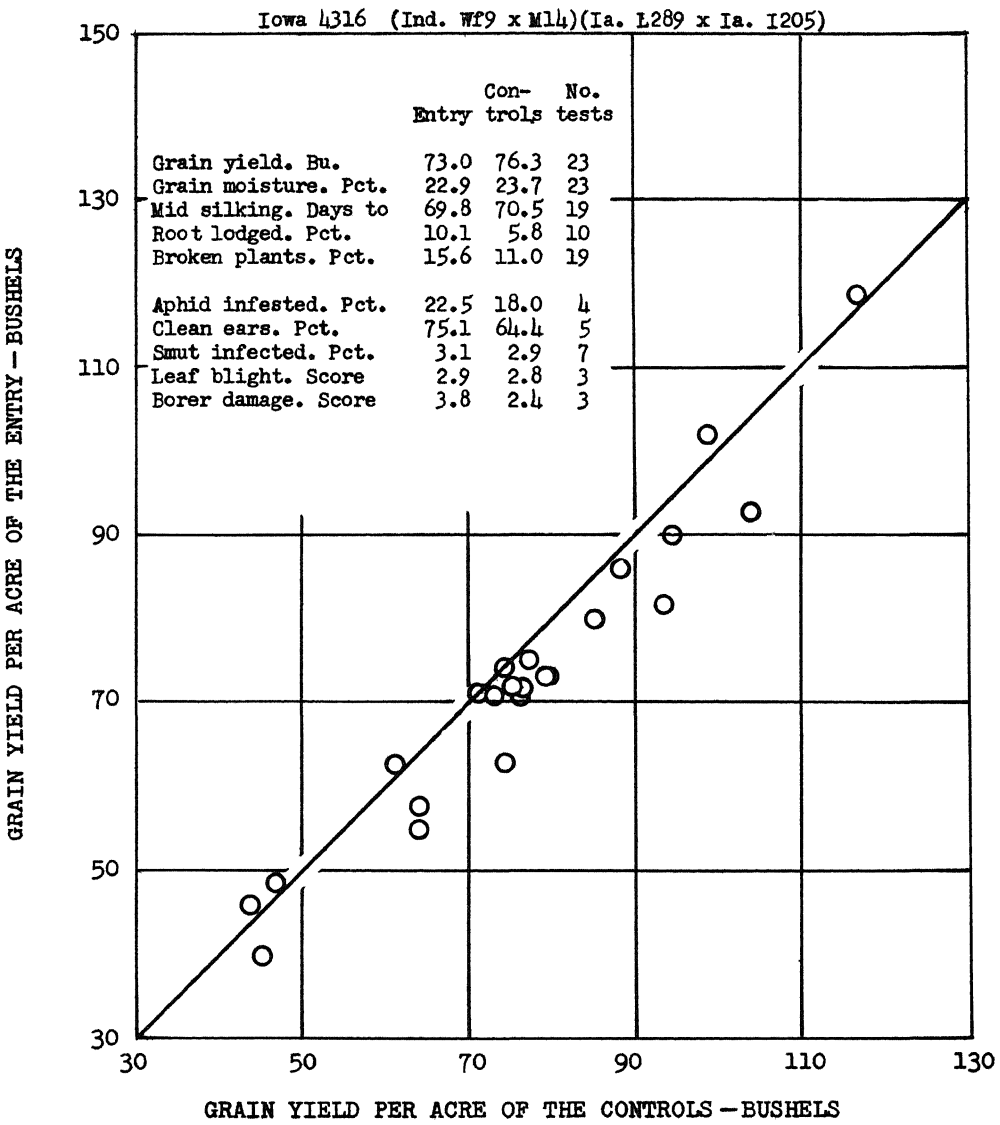


	Entry	Controls	No. tests
Grain yield. Bu.	67.0	70.0	15
Grain moisture. Pct.	27.0	25.9	15
Mid silking. Days to	69.1	68.6	14
Root lodged. Pct.	11.7	3.8	4
Broken plants. Pct.	14.5	9.7	7
Aphid infested. Pct.	24.5	18.0	3
Clean ears. Pct.	78.0	95.1	1
Smut infected. Pct.	.8	.6	2
Leaf blight. Score	3.4	2.3	1
Borer damage. Score	3.9	2.9	3

Northern Ohio

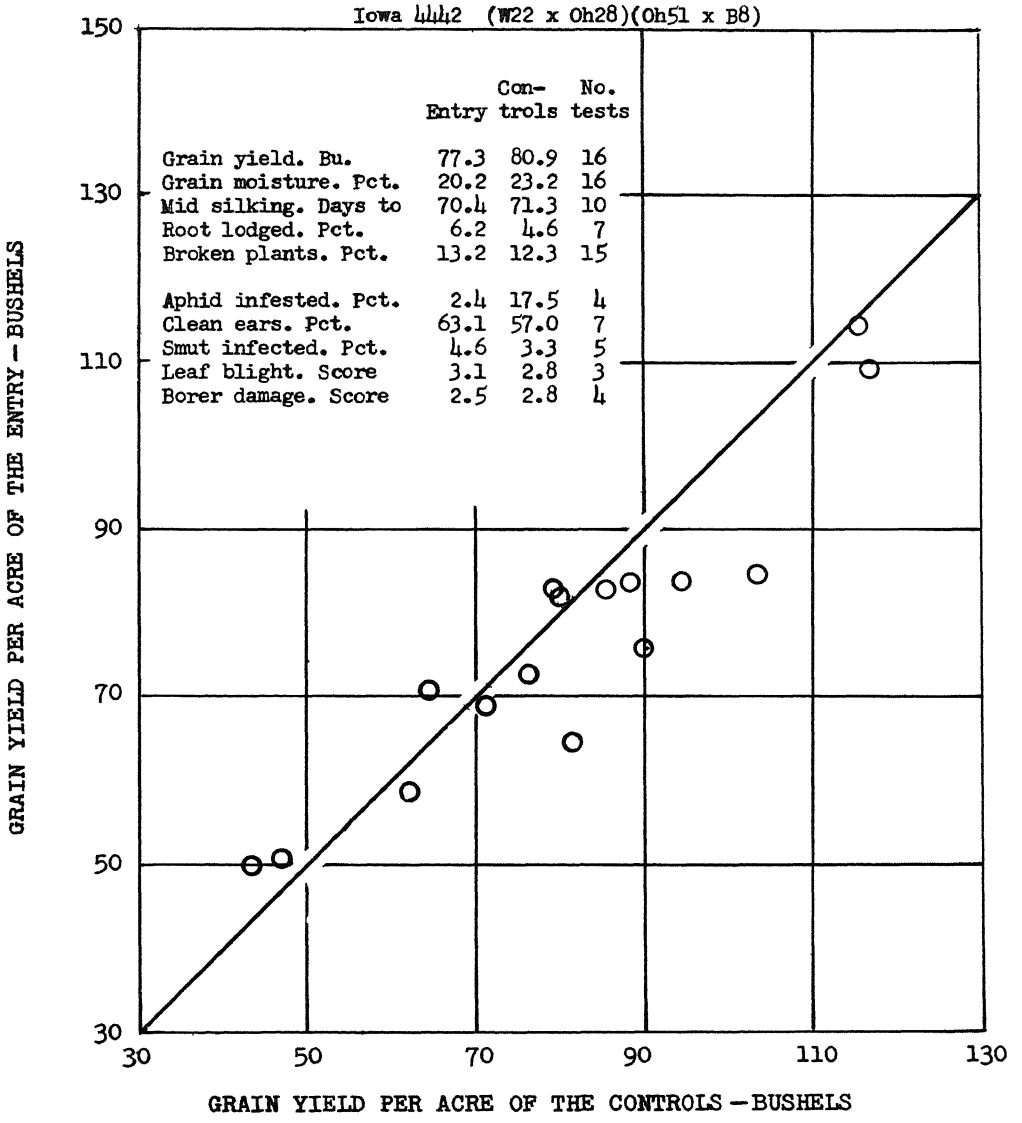


Northern Ohio



Northern Ohio

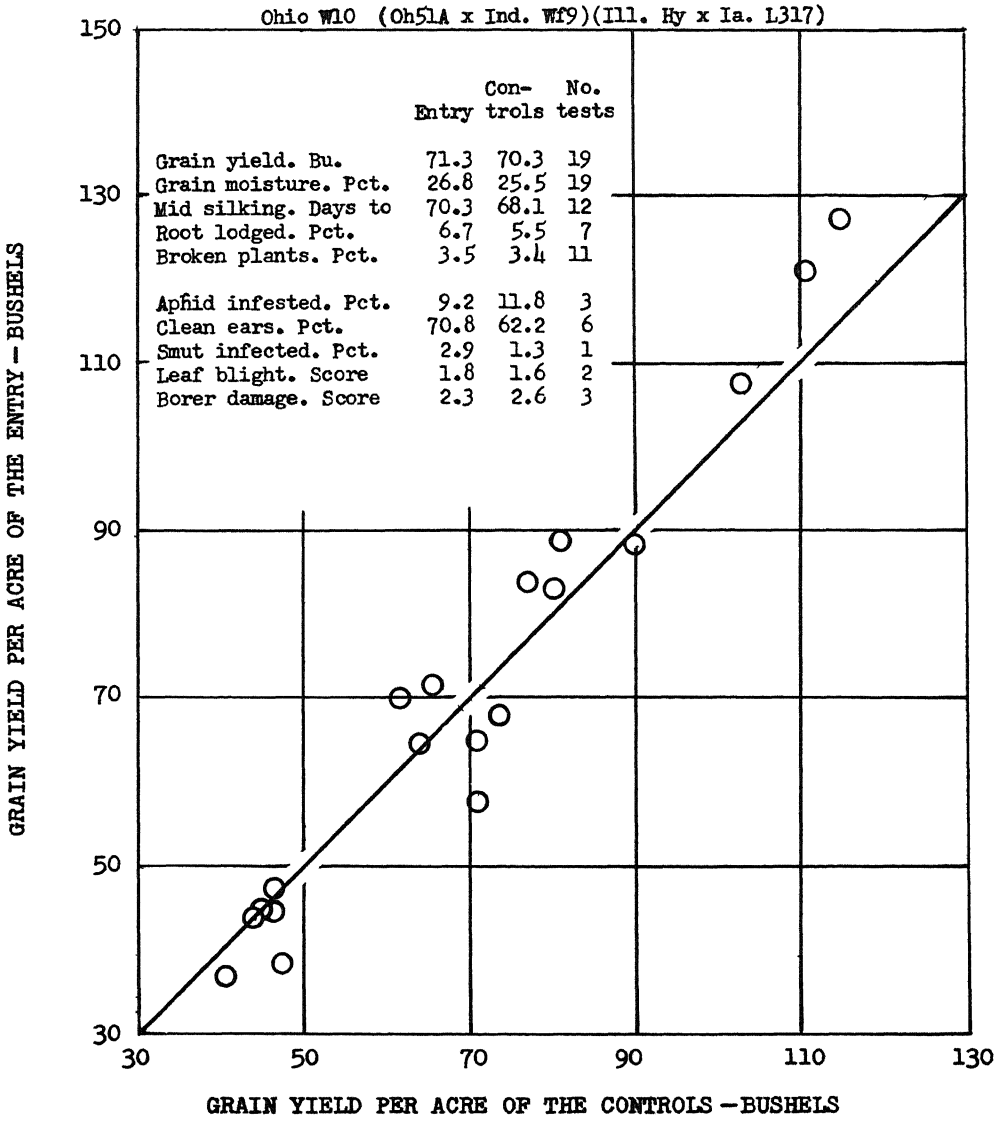
Iowa 4442 (W22 x Oh28)(Oh51 x B8)



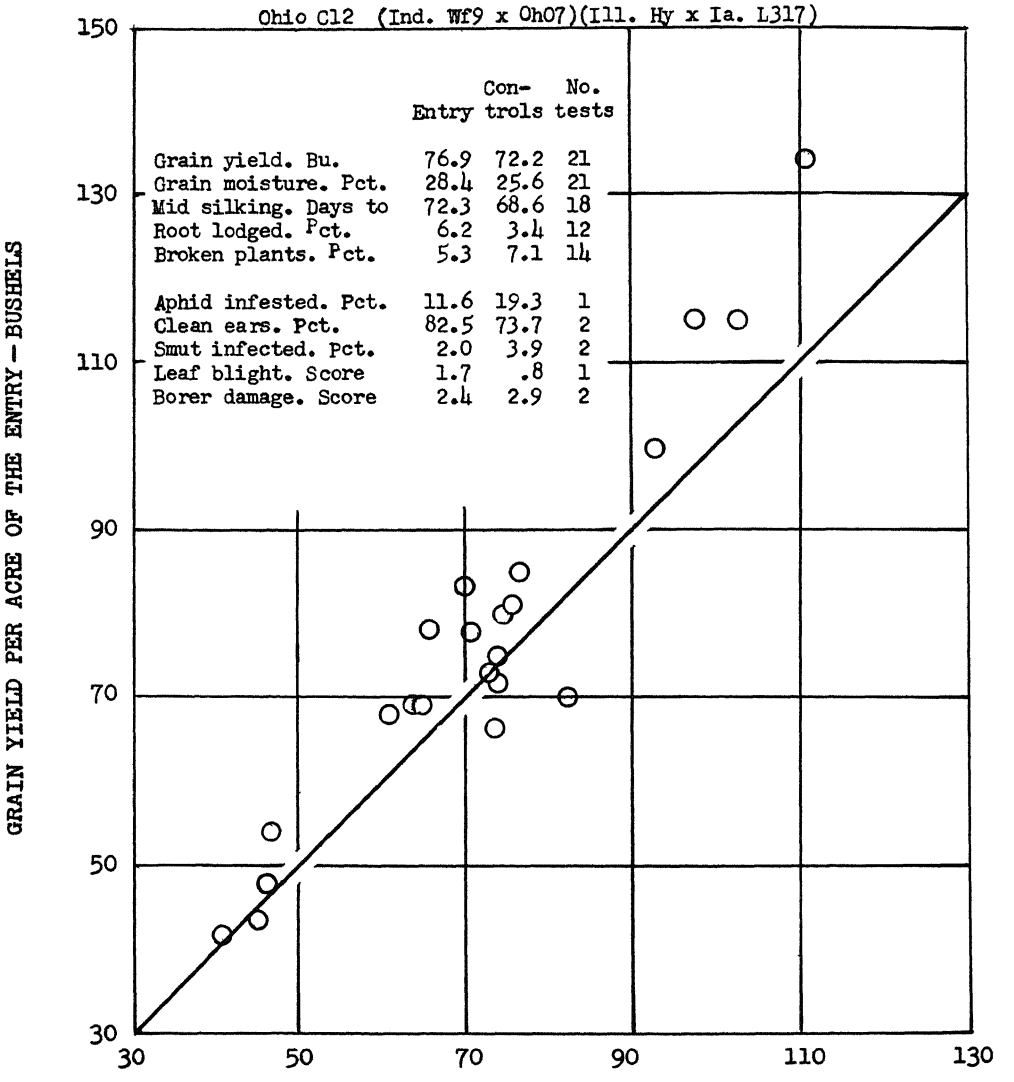
	Entry	Con-trols	No. tests
Grain yield. Bu.	77.3	80.9	16
Grain moisture. Pct.	20.2	23.2	16
Mid silking. Days to	70.4	71.3	10
Root lodged. Pct.	6.2	4.6	7
Broken plants. Pct.	13.2	12.3	15
Aphid infested. Pct.	2.4	17.5	4
Clean ears. Pct.	63.1	57.0	7
Smut infected. Pct.	4.6	3.3	5
Leaf blight. Score	3.1	2.8	3
Borer damage. Score	2.5	2.8	4

Northern Ohio

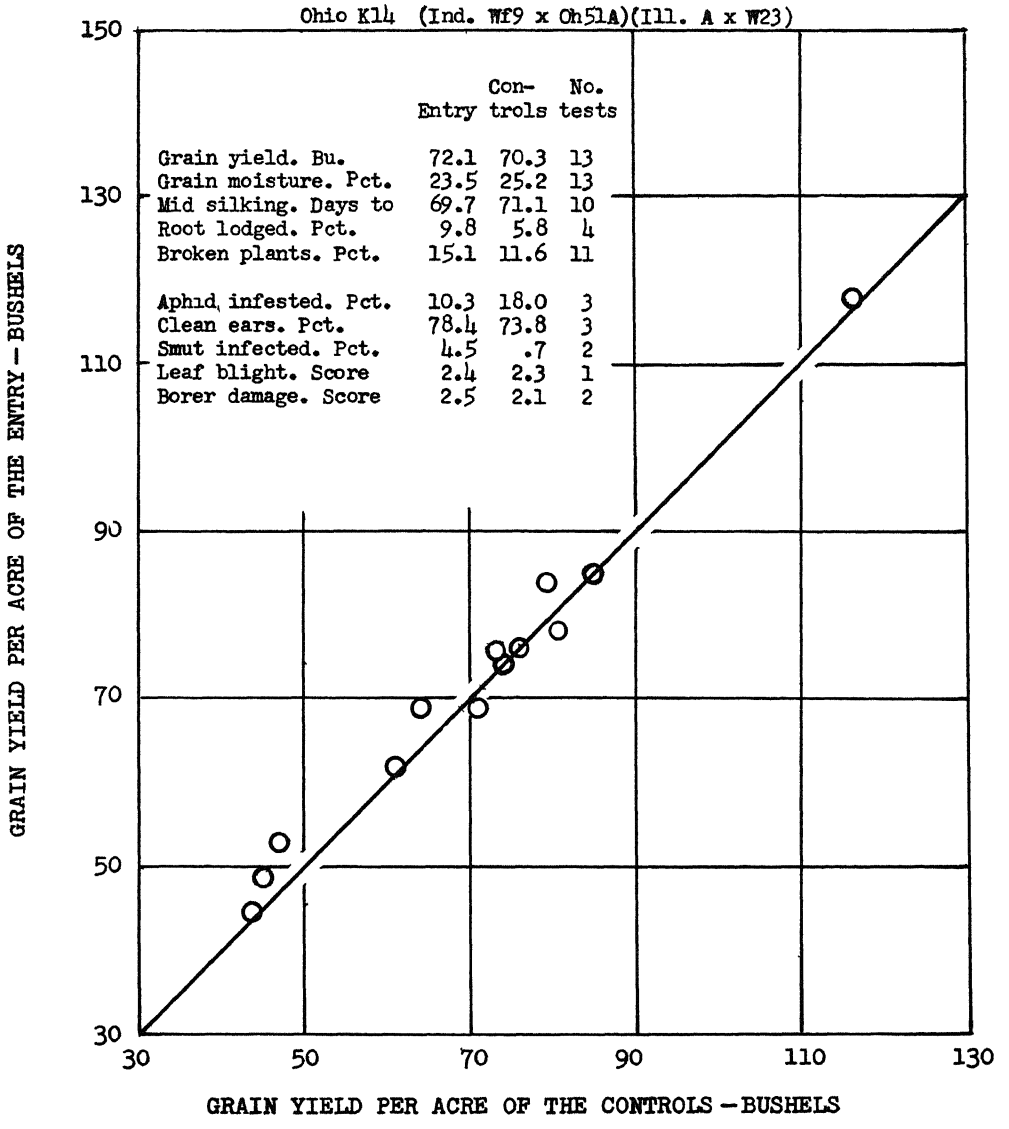
Ohio W10 (Oh51A x Ind. Wf9)(Ill. Hy x Ia. L317)



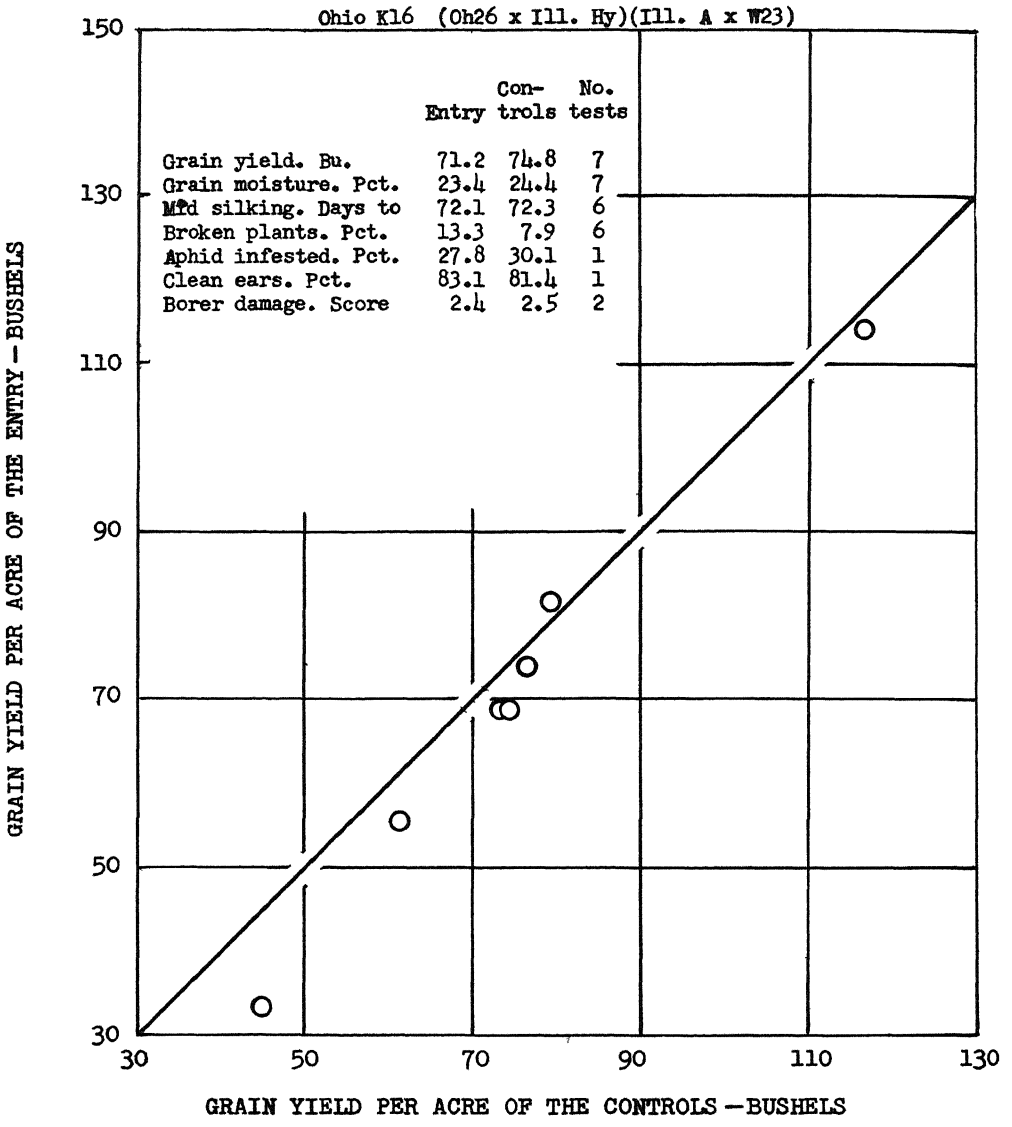
Northern Ohio



Northern Ohio

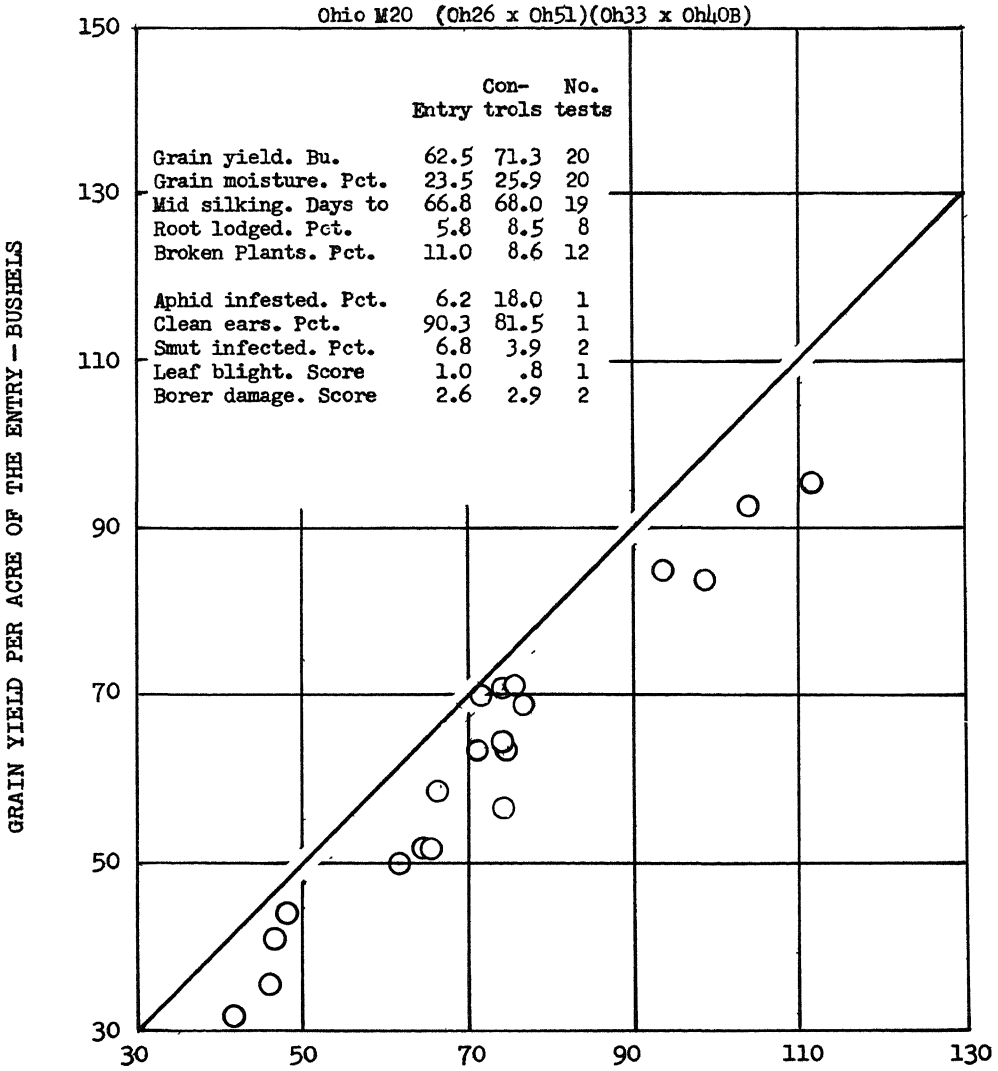


Northern Ohio



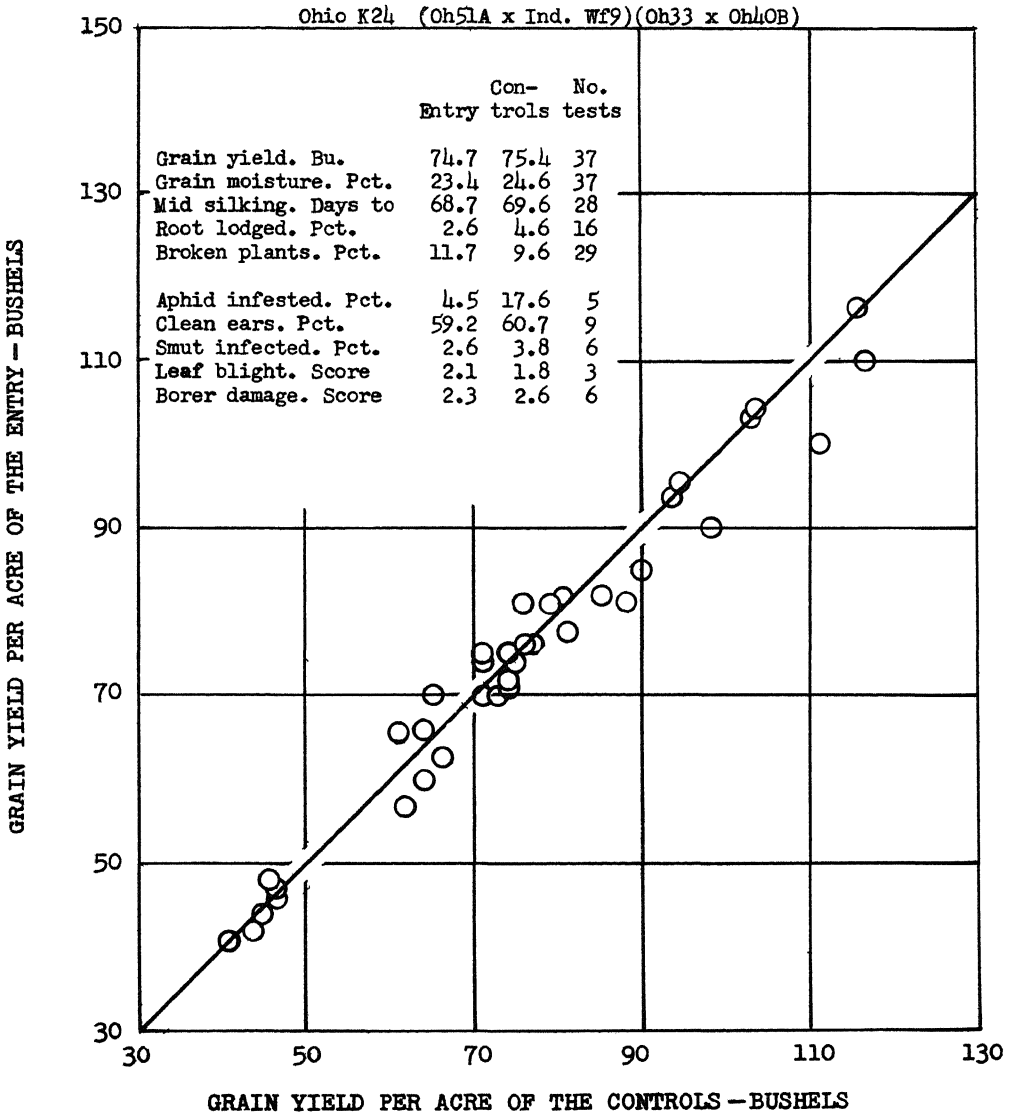
Northern Ohio

Ohio M20 (Oh26 x Oh51)(Oh33 x Oh40B)



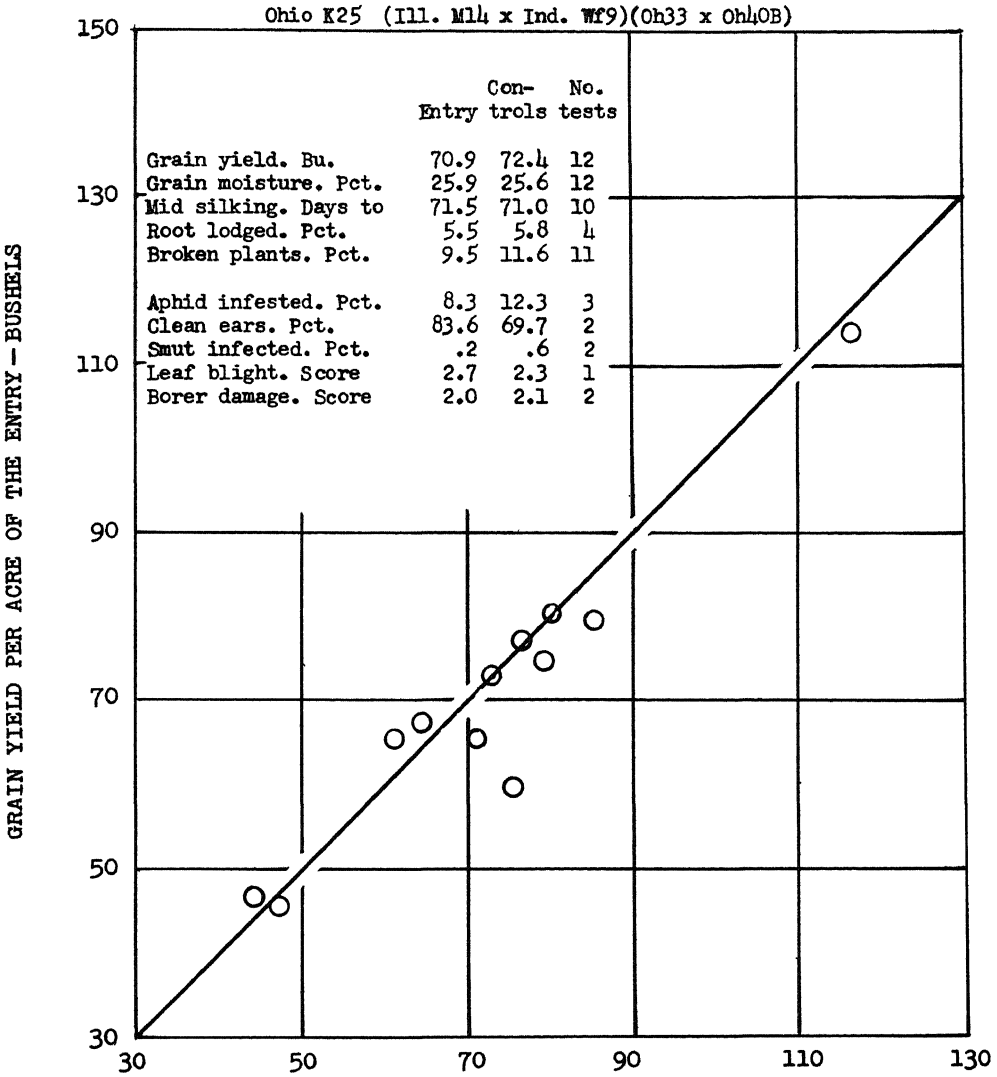
	Entry	Con-trols	No. tests
Grain yield. Bu.	62.5	71.3	20
Grain moisture. Pct.	23.5	25.9	20
Mid silking. Days to	66.8	68.0	19
Root lodged. Pct.	5.8	8.5	8
Broken Plants. Pct.	11.0	8.6	12
Aphid infested. Pct.	6.2	18.0	1
Clean ears. Pct.	90.3	81.5	1
Smut infected. Pct.	6.8	3.9	2
Leaf blight. Score	1.0	.8	1
Borer damage. Score	2.6	2.9	2

Northern Ohio



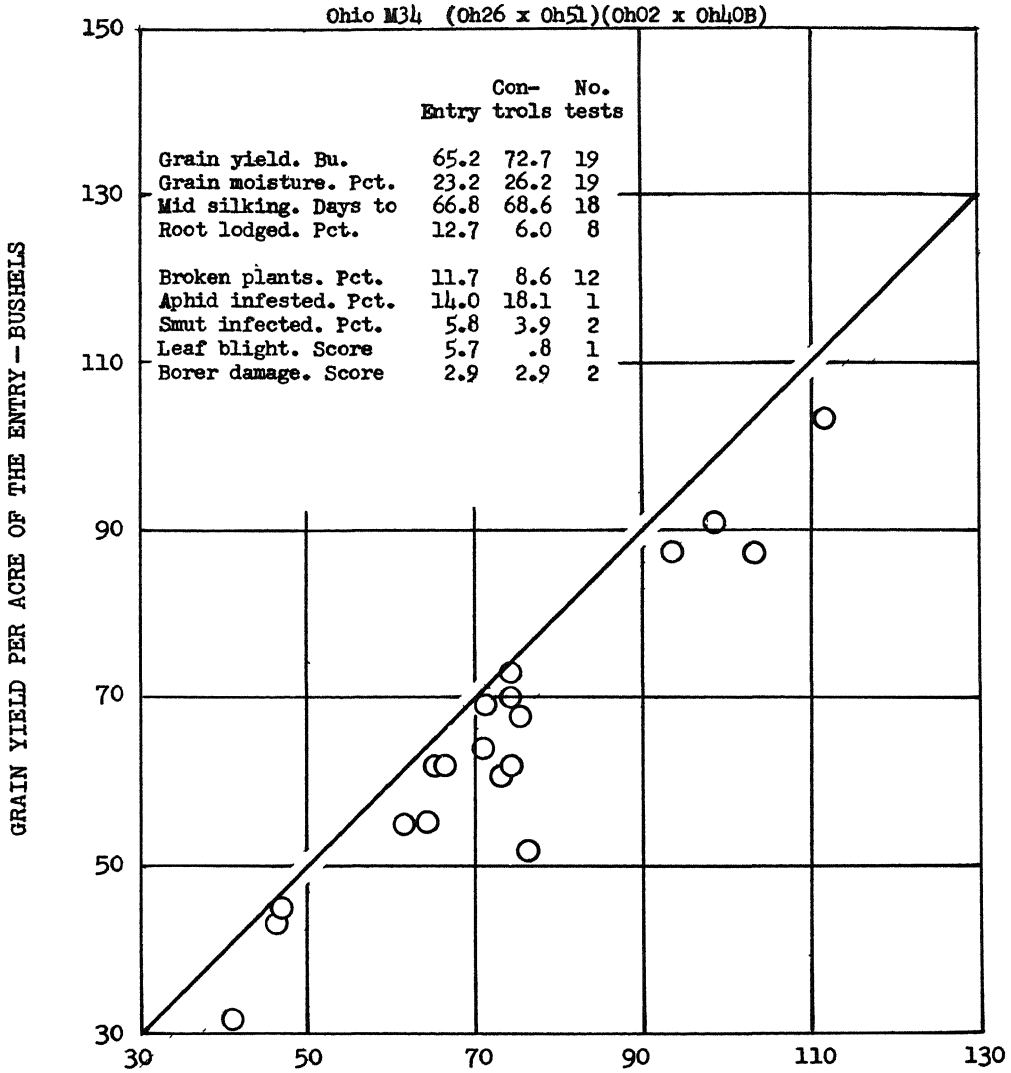
Northern Ohio

Ohio K25 (Ill. M14 x Ind. Wf9)(Oh33 x Oh40B)



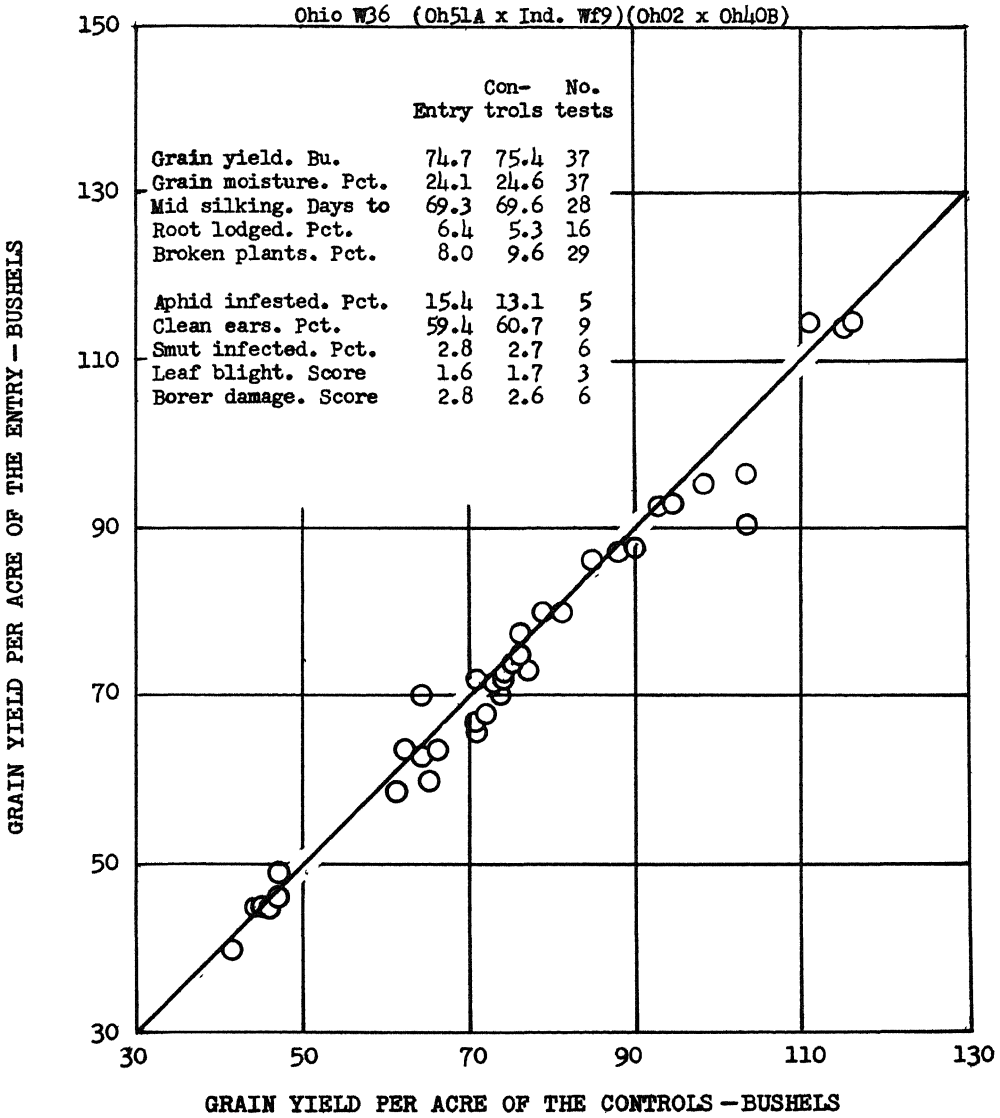
Northern Ohio

Ohio M34 (Oh26 x Oh51)(Oh02 x Oh40B)

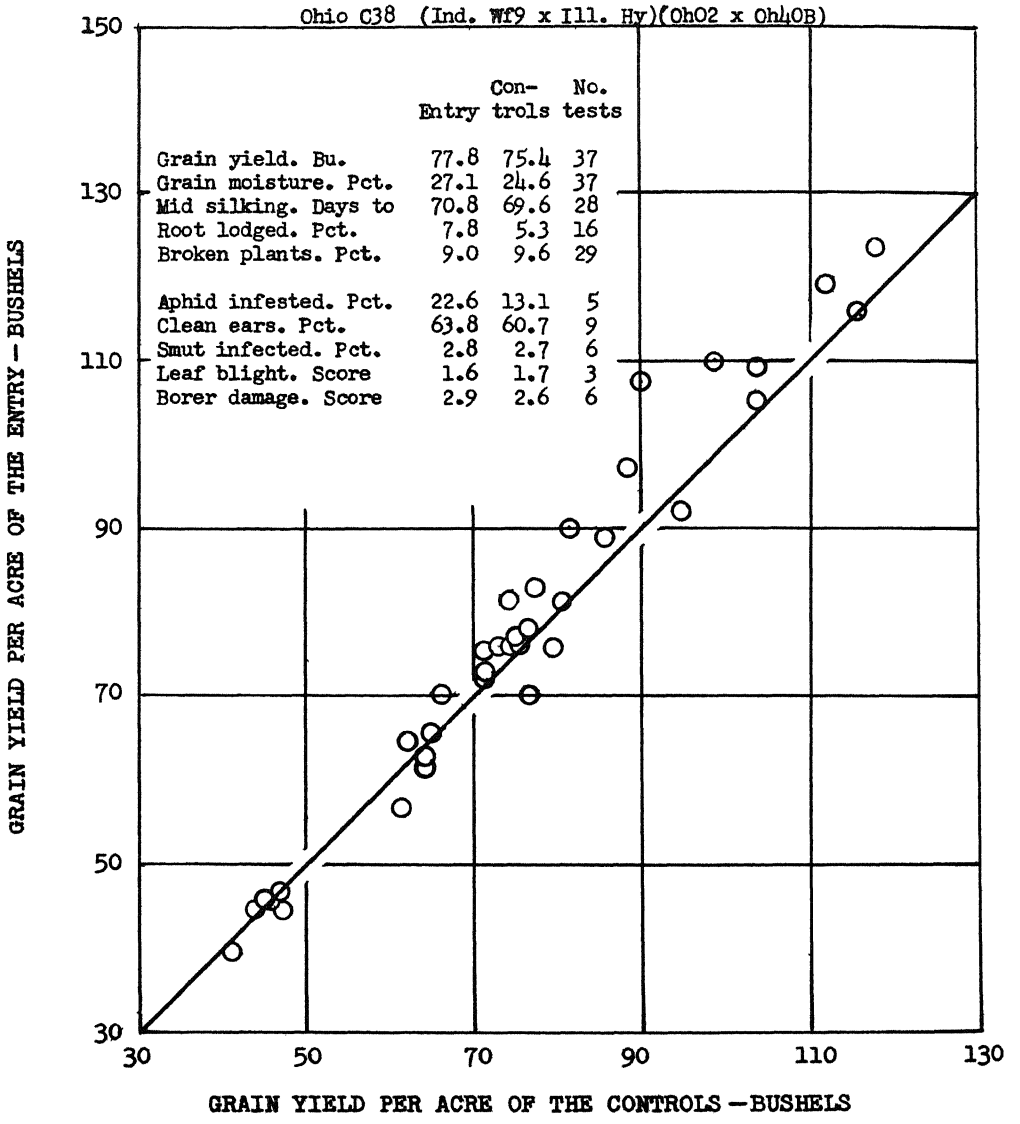


	Entry	Controls	No. tests
Grain yield. Bu.	65.2	72.7	19
Grain moisture. Pct.	23.2	26.2	19
Mid silking. Days to	66.8	68.6	18
Root lodged. Pct.	12.7	6.0	8
Broken plants. Pct.	11.7	8.6	12
Aphid infested. Pct.	14.0	18.1	1
Smut infected. Pct.	5.8	3.9	2
Leaf blight. Score	5.7	.8	1
Borer damage. Score	2.9	2.9	2

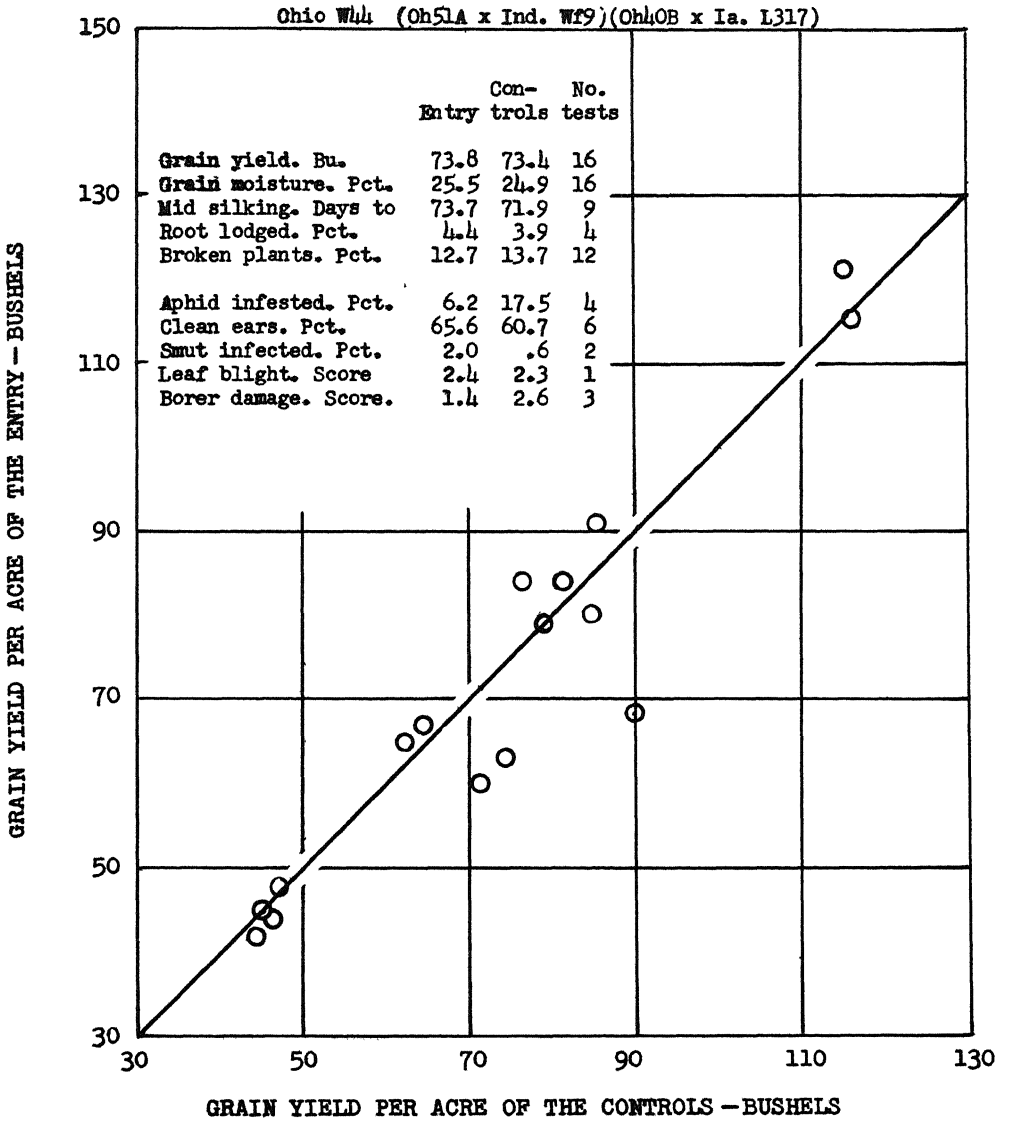
Northern Ohio



Northern Ohio

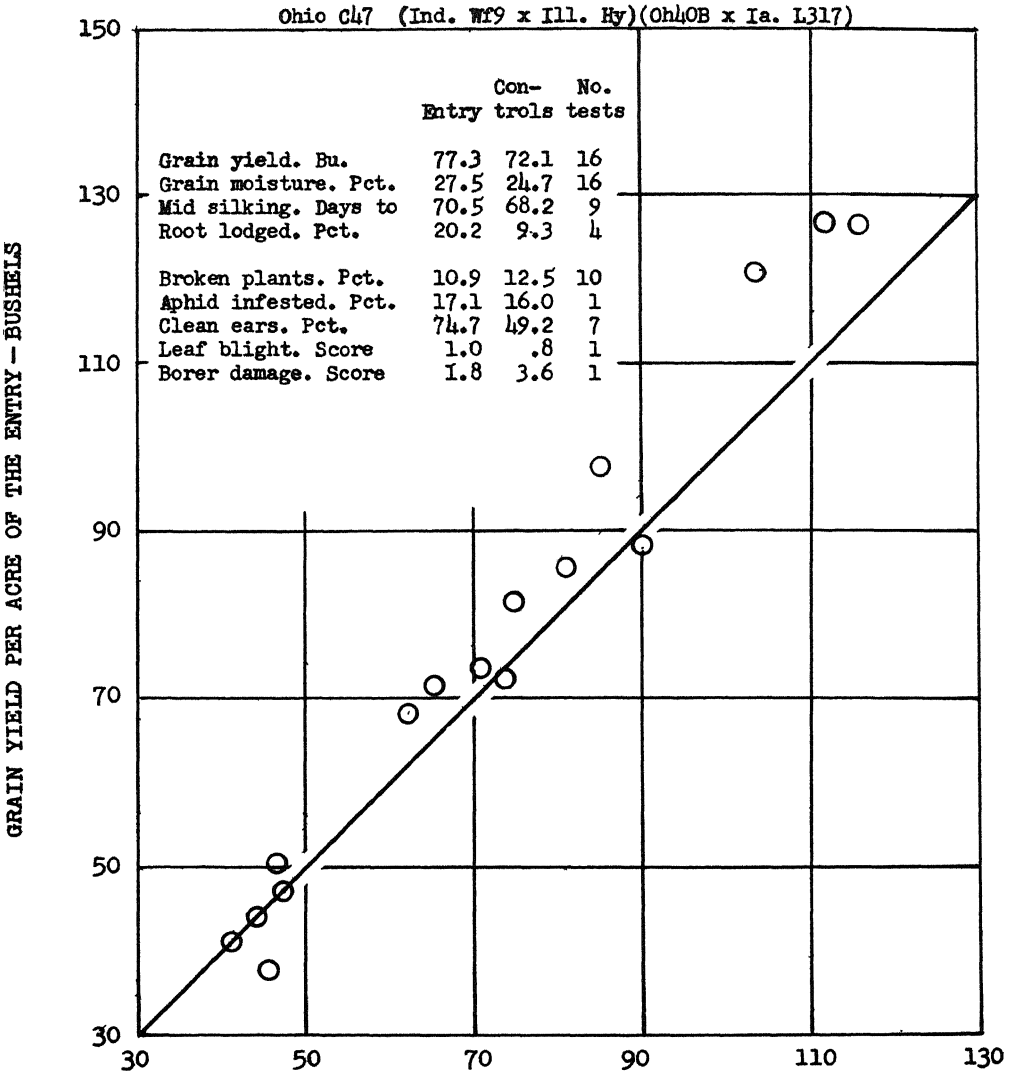


Northern Ohio



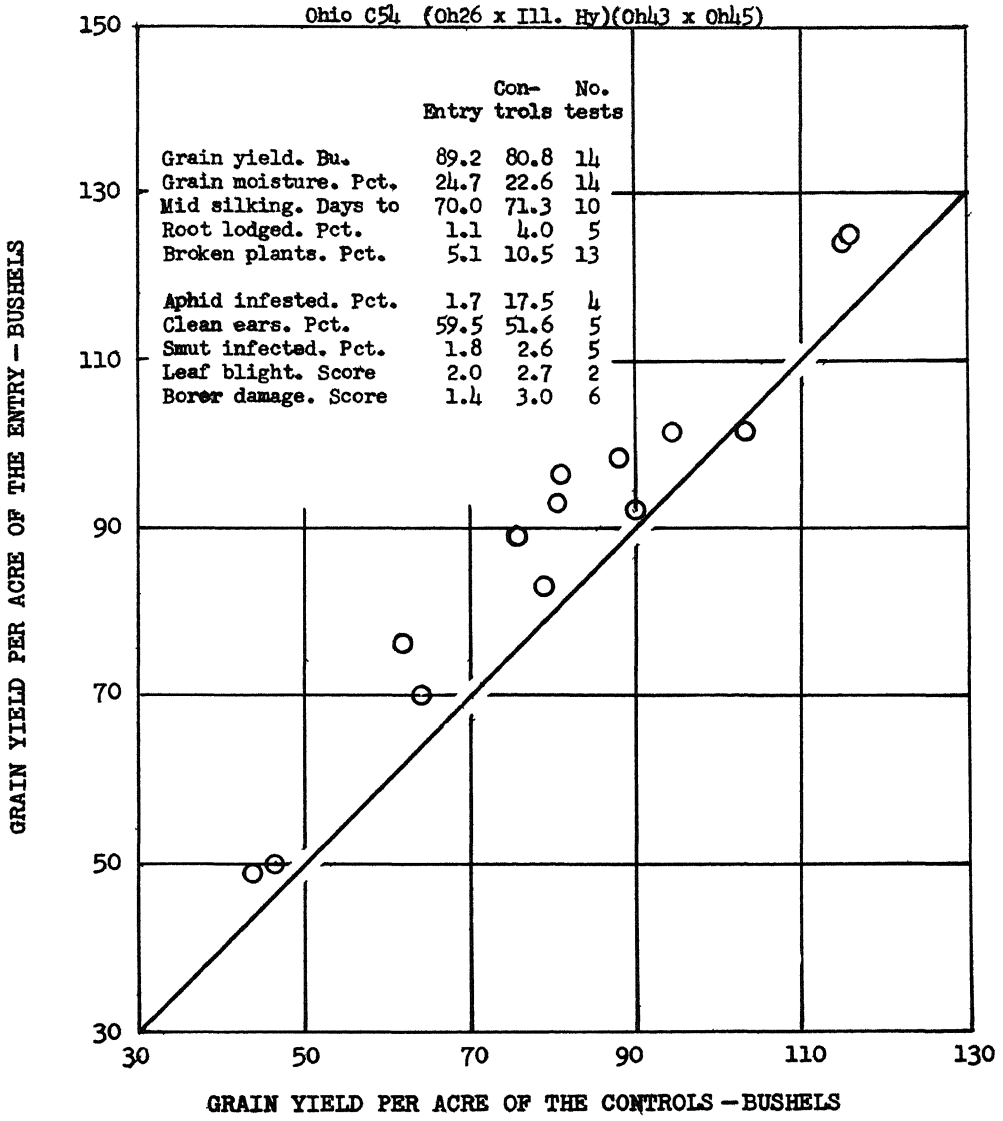
Northern Ohio

Ohio C47 (Ind. Wf9 x Ill. Hy)(Oh40B x Ia. L317)

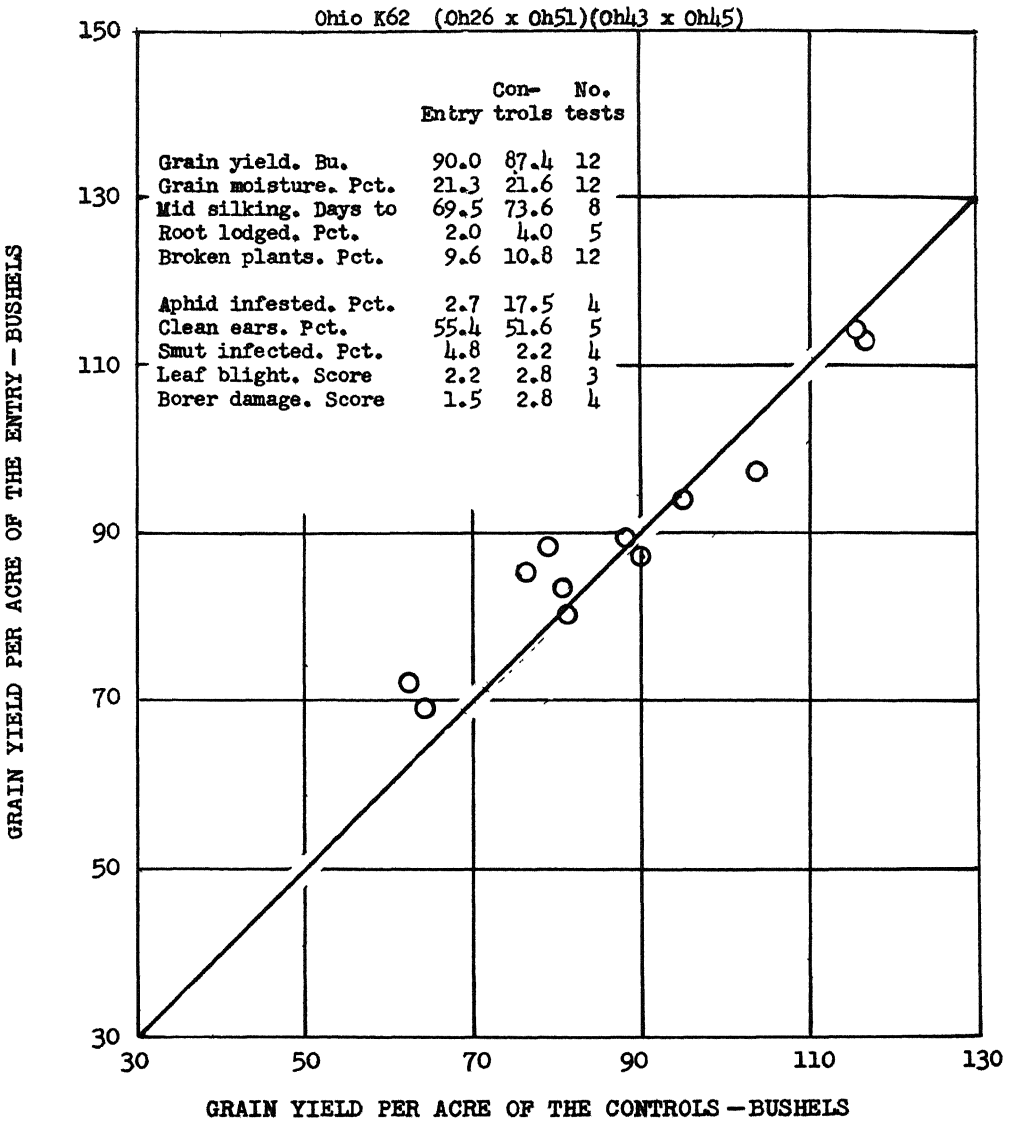


	Entry	Controls	No. tests
Grain yield. Bu.	77.3	72.1	16
Grain moisture. Pct.	27.5	24.7	16
Mid silking. Days to	70.5	68.2	9
Root lodged. Pct.	20.2	9.3	4
Broken plants. Pct.	10.9	12.5	10
Aphid infested. Pct.	17.1	16.0	1
Clean ears. Pct.	74.7	49.2	7
Leaf blight. Score	1.0	.8	1
Borer damage. Score	1.8	3.6	1

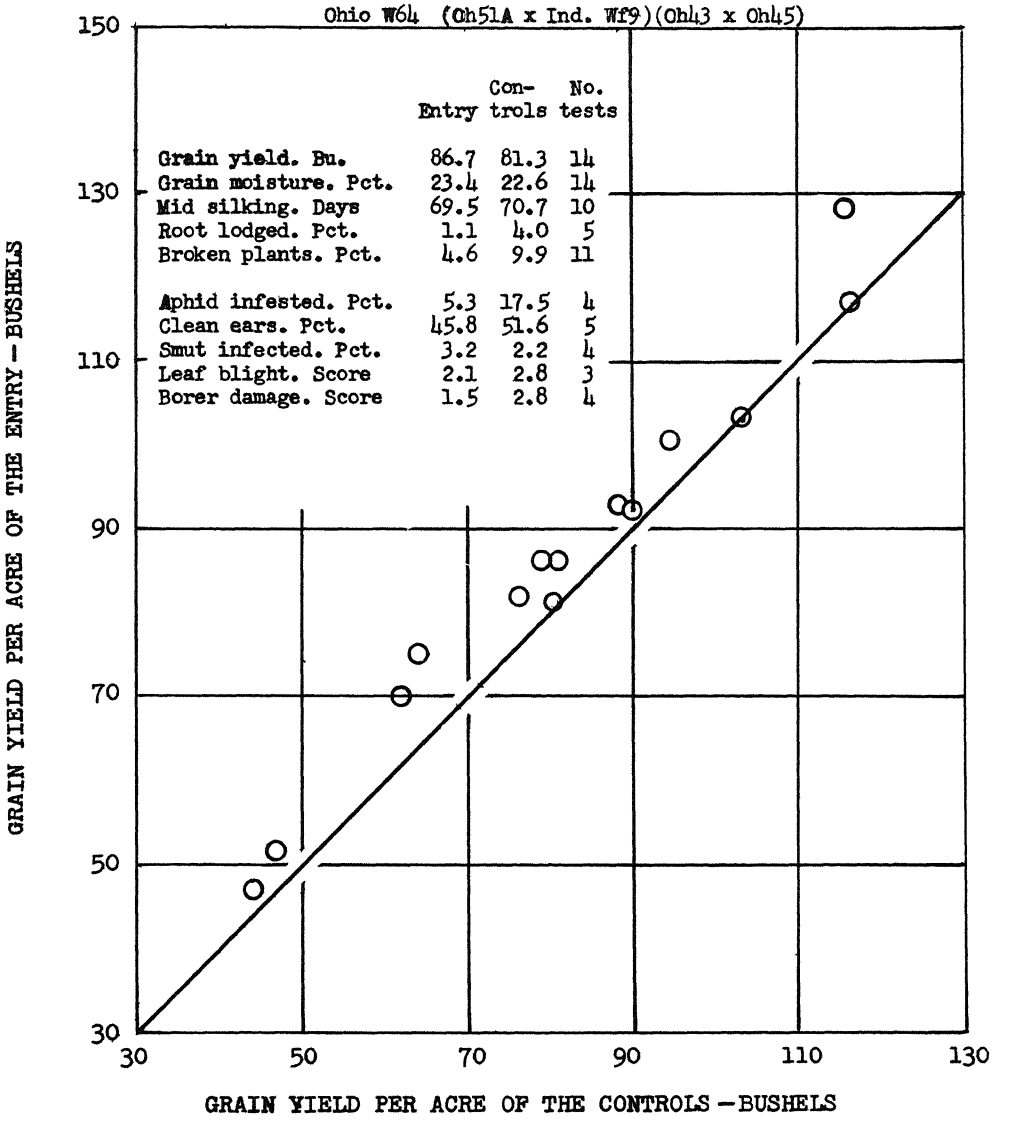
Northern Ohio



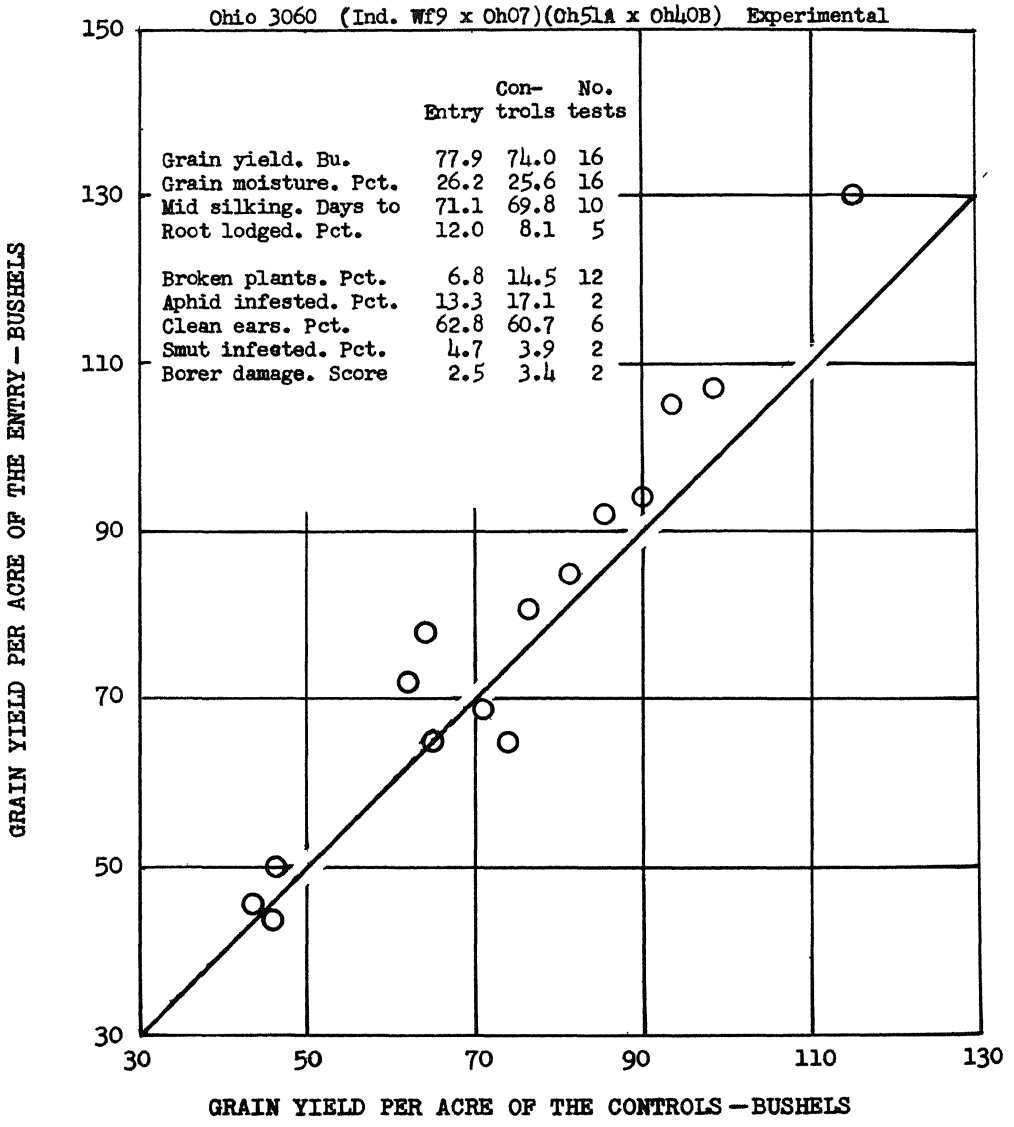
Northern Ohio



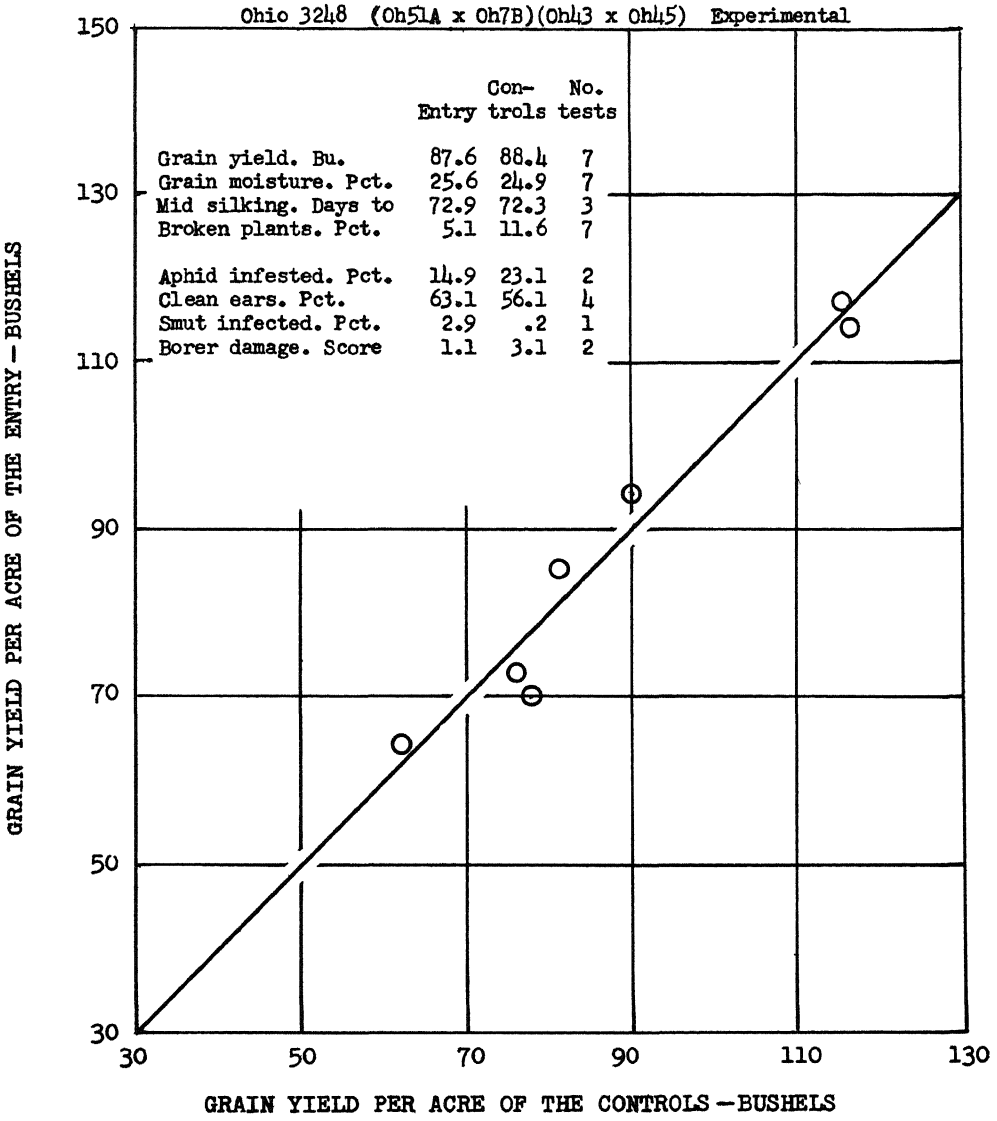
Northern Ohio



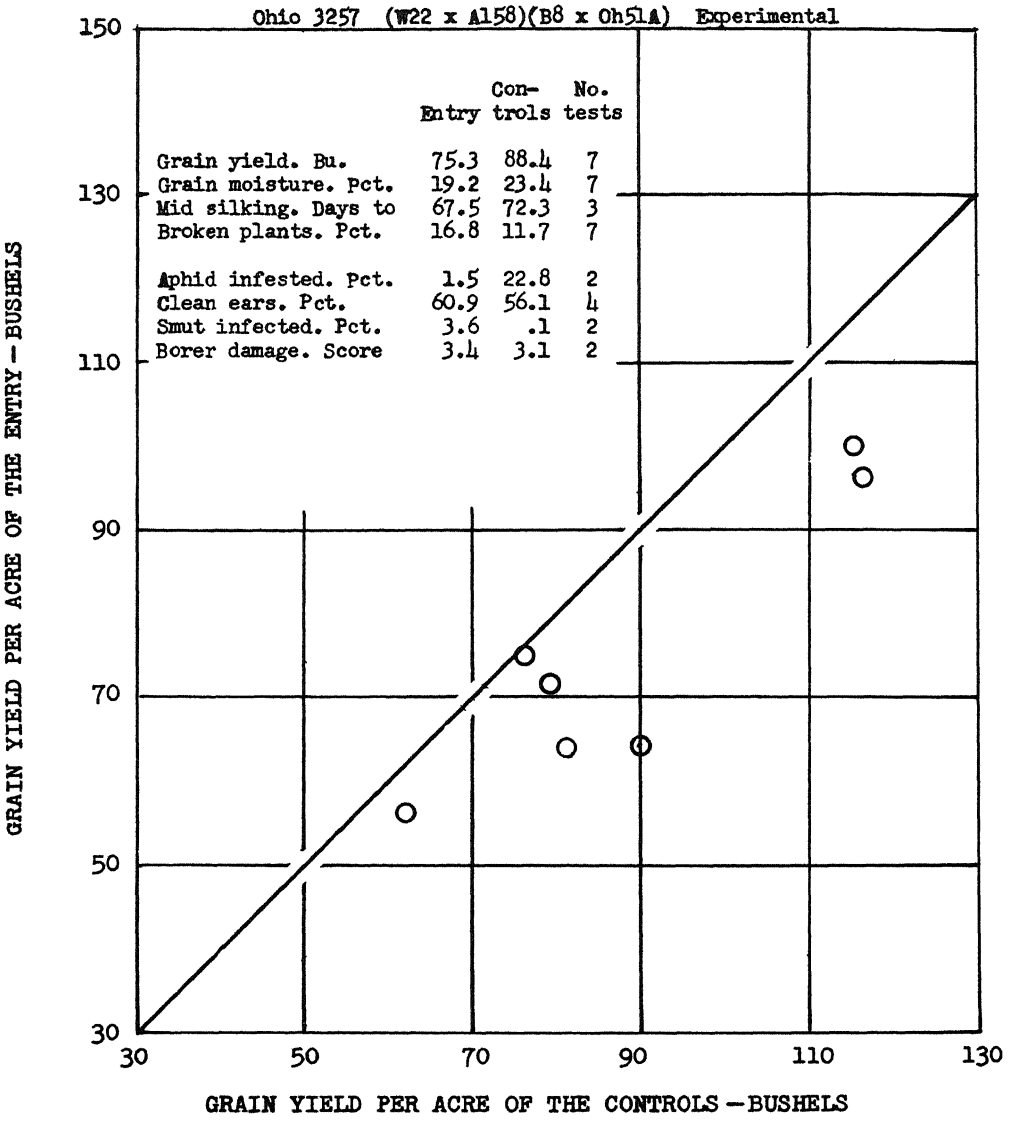
Northern Ohio



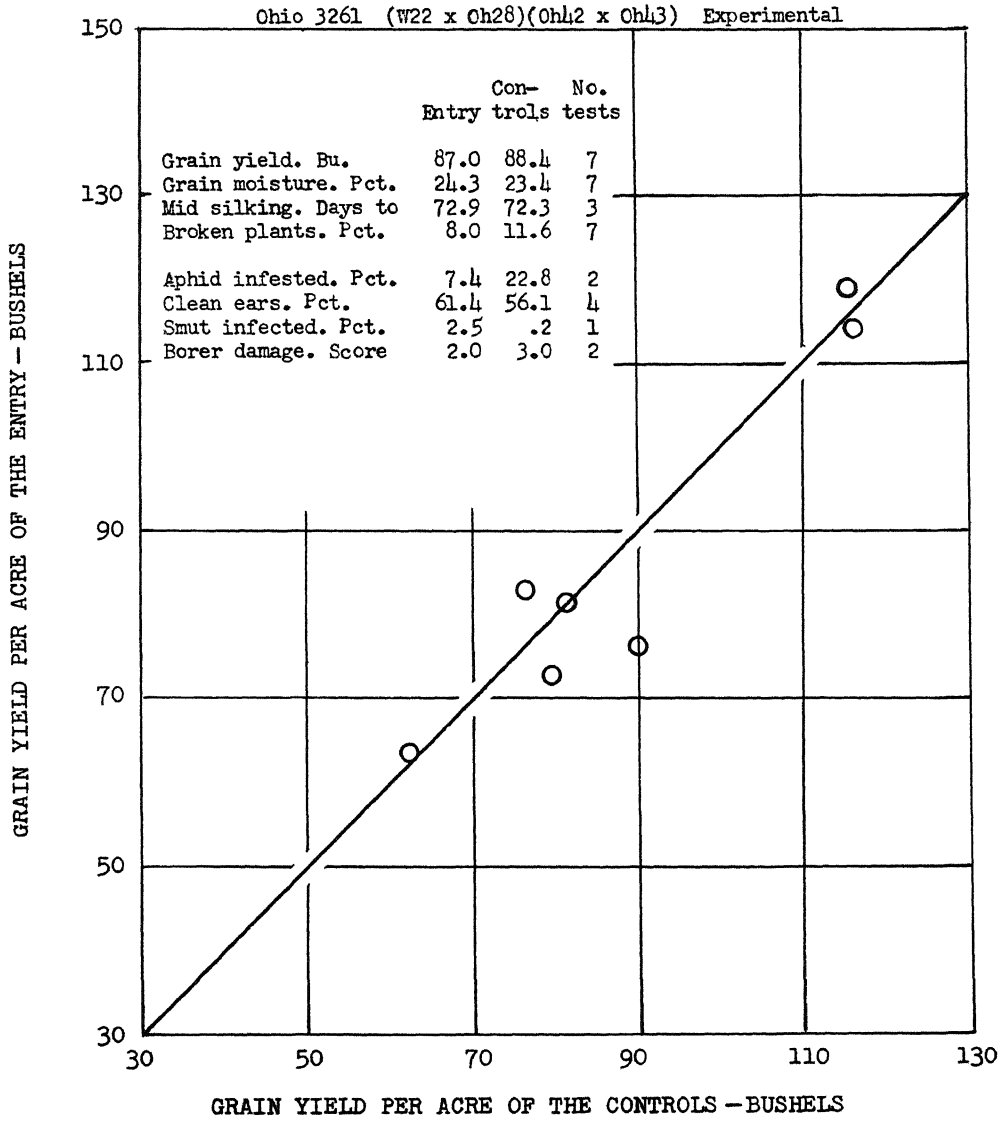
Northern Ohio



Northern Ohio

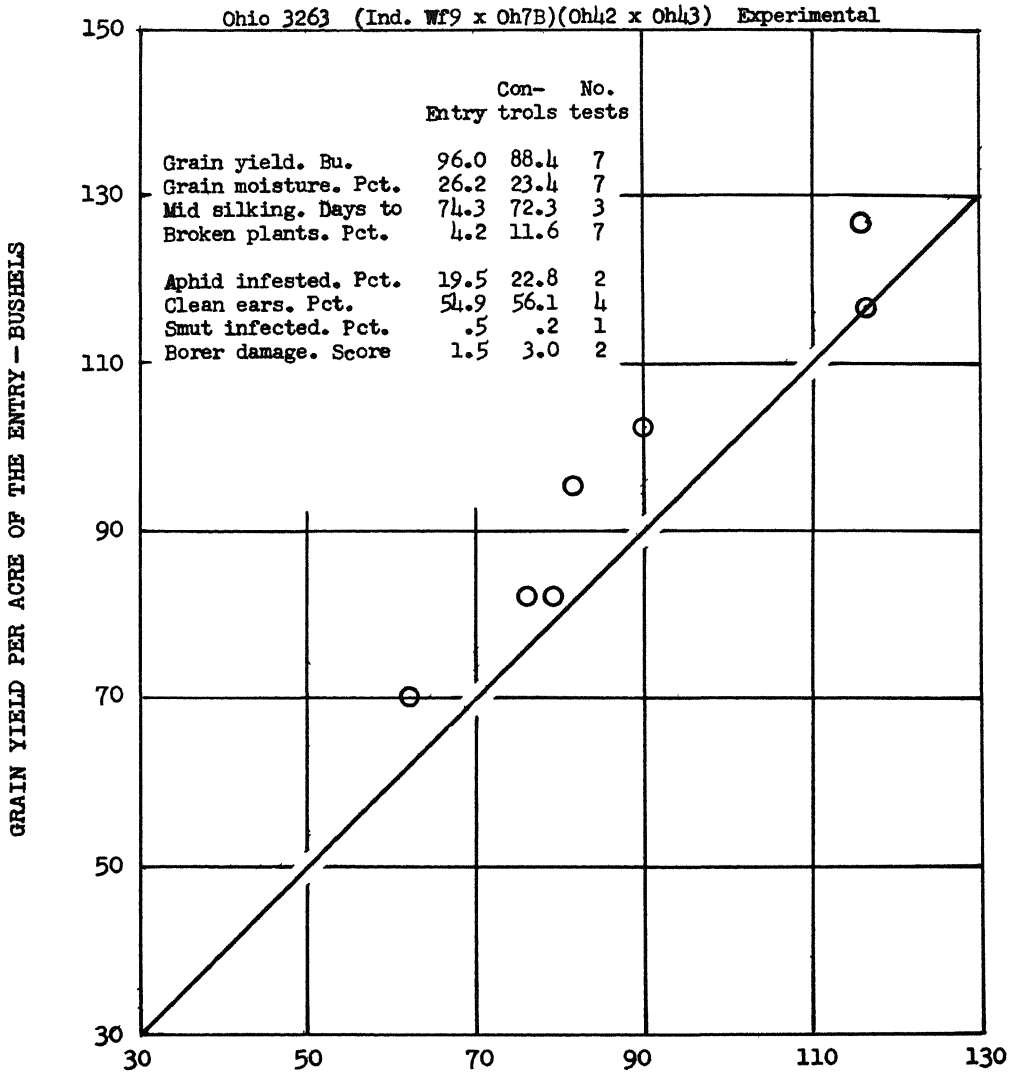


Northern Ohio



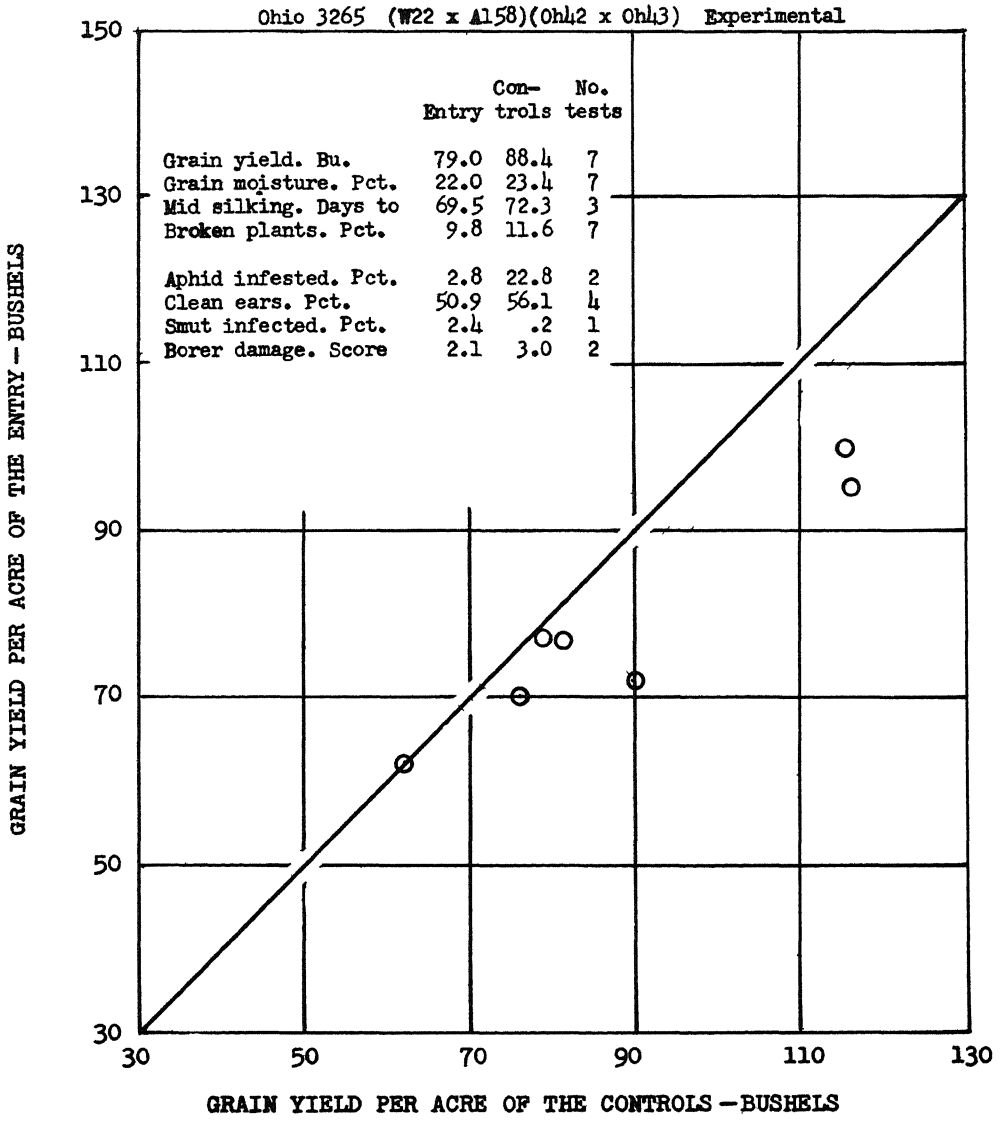
Northern Ohio

Ohio 3263 (Ind. Wf9 x Oh7B)(Oh42 x Oh43) Experimental

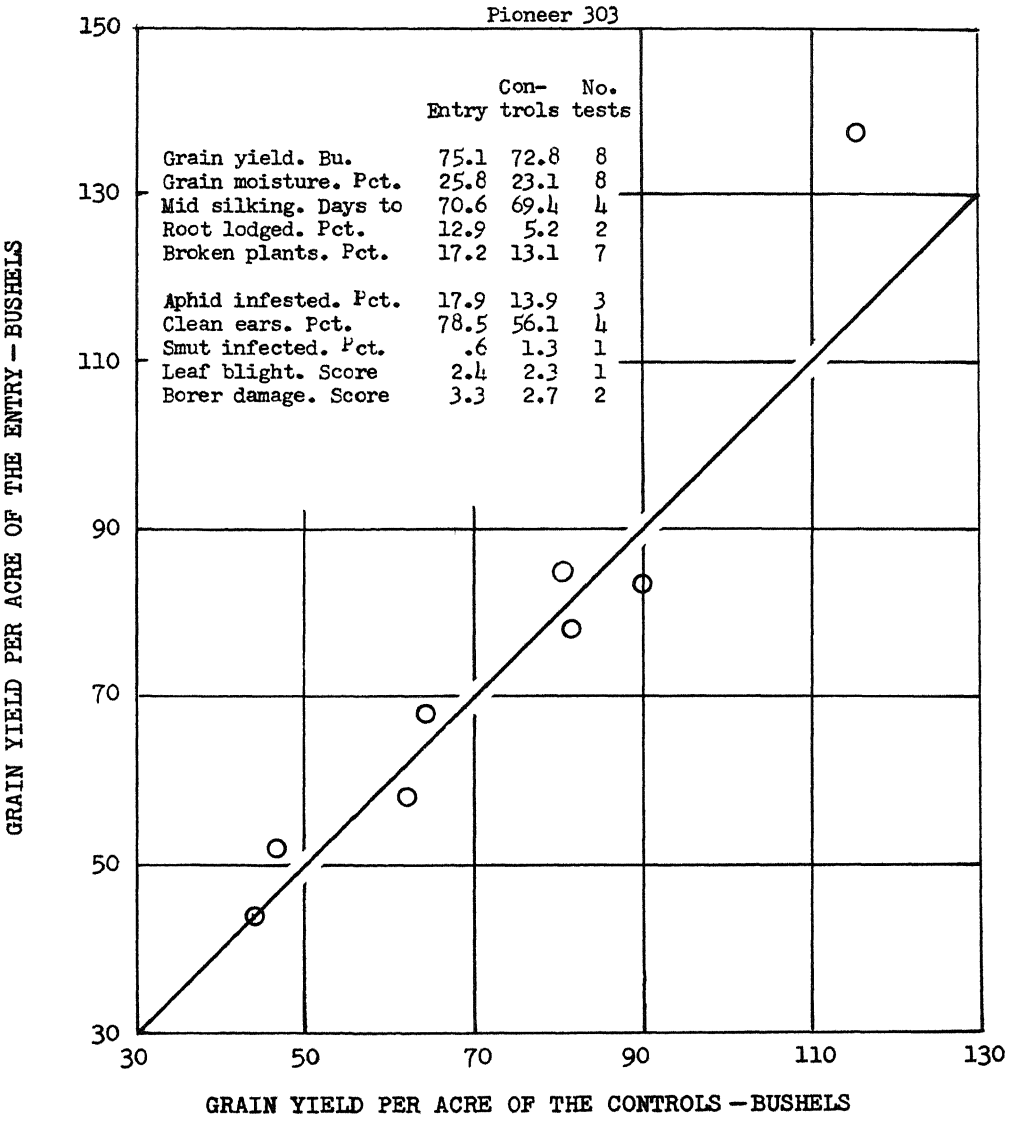


Northern Ohio

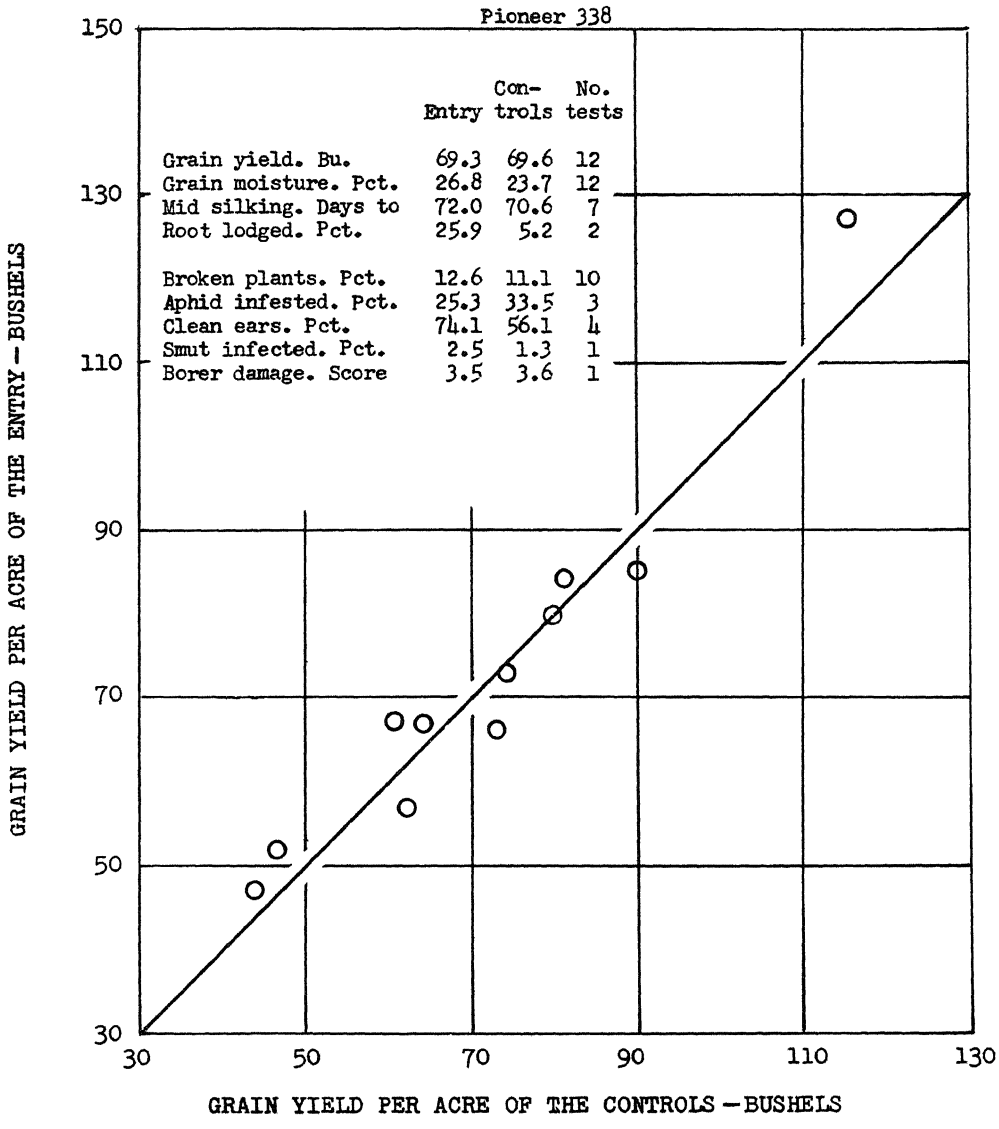
Ohio 3265 (W22 x A158)(Oh42 x Oh43) Experimental



Northern Ohio

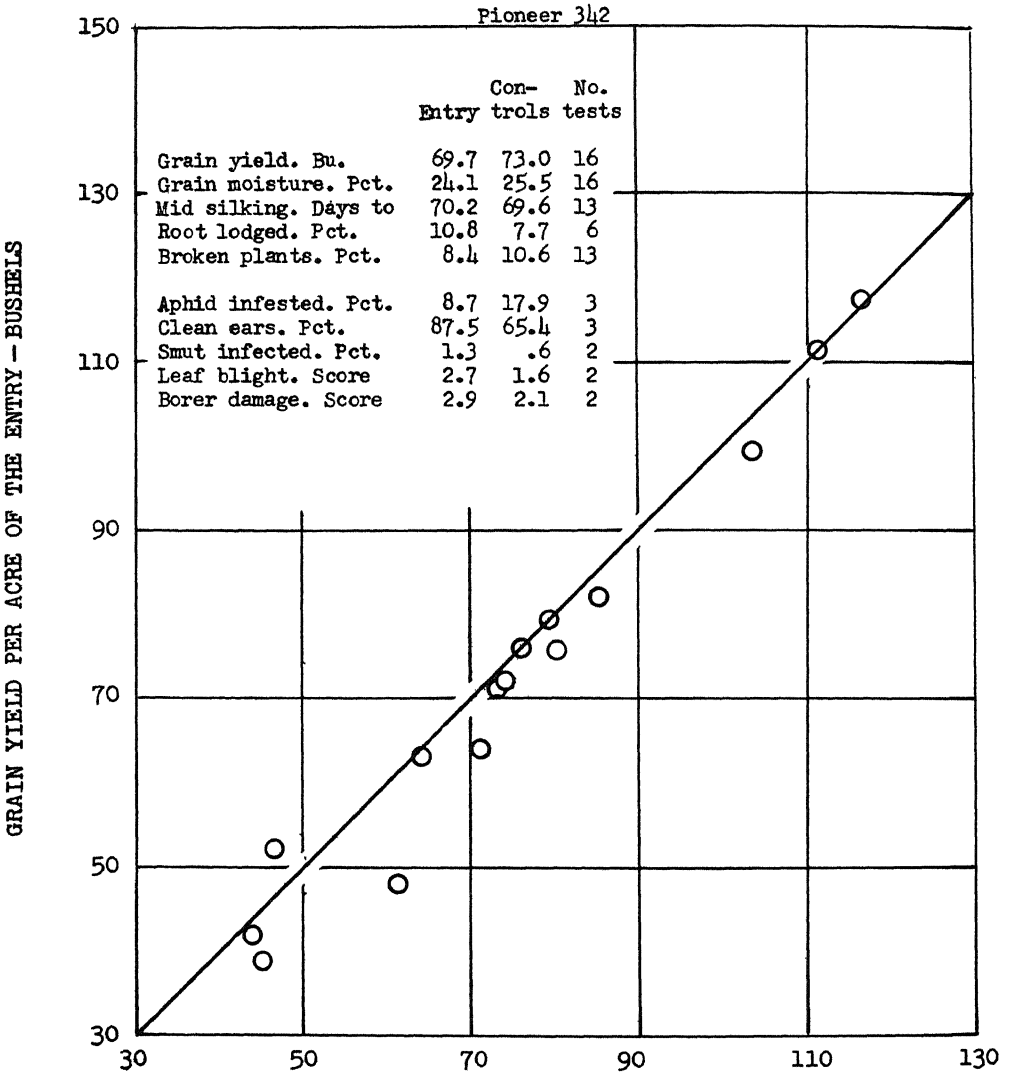


Northern Ohio

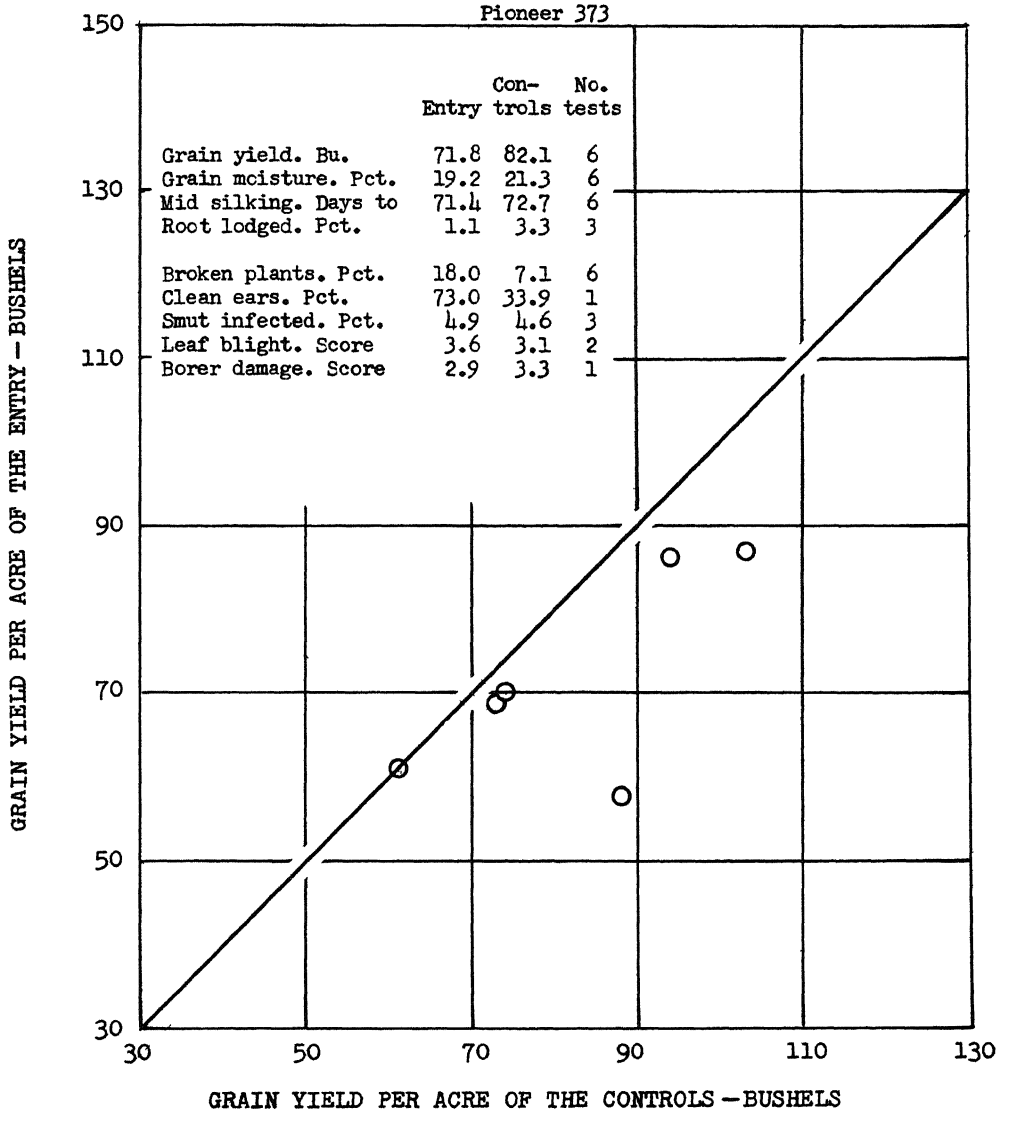


Northern Ohio

Pioneer 342



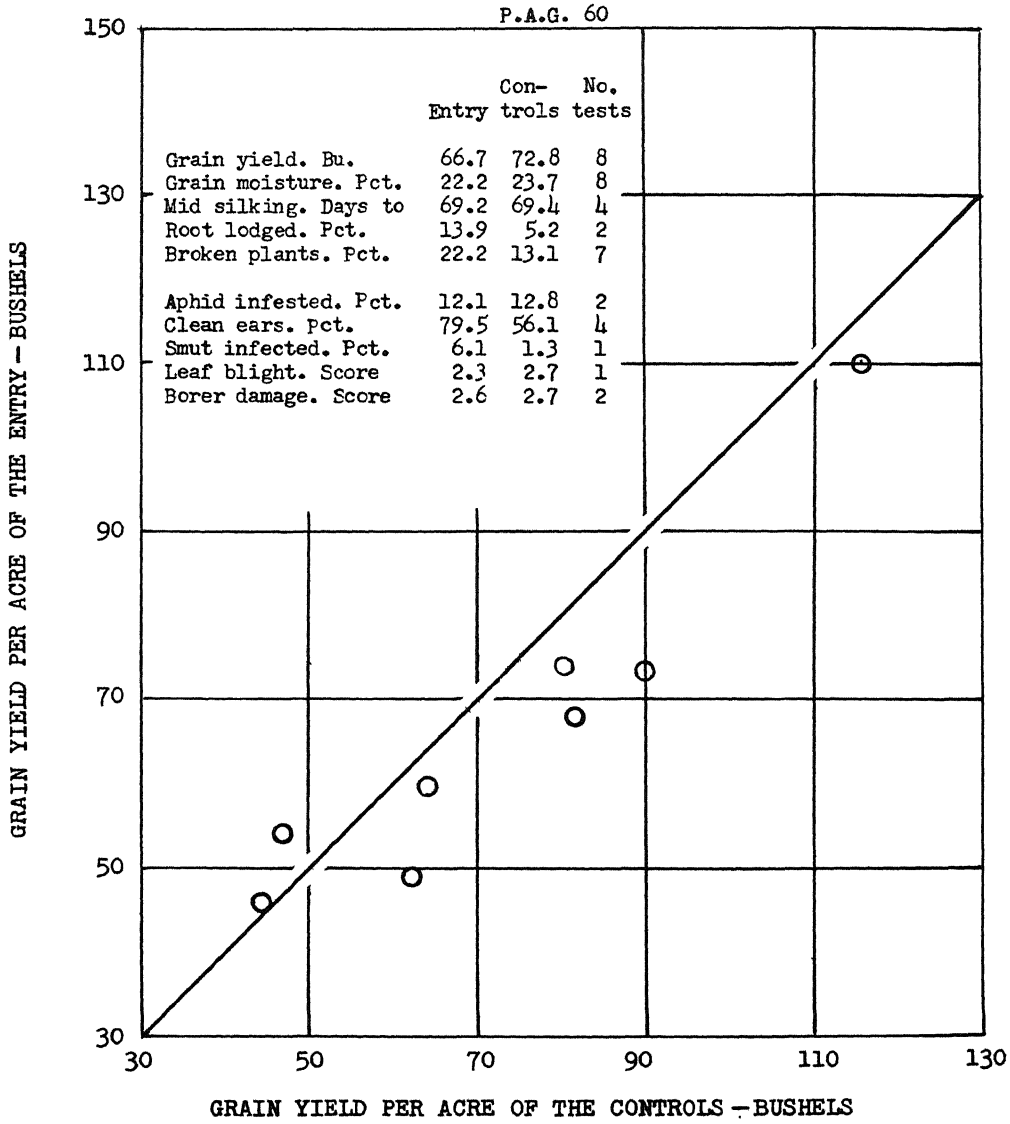
Northern Ohio



Northern Ohio

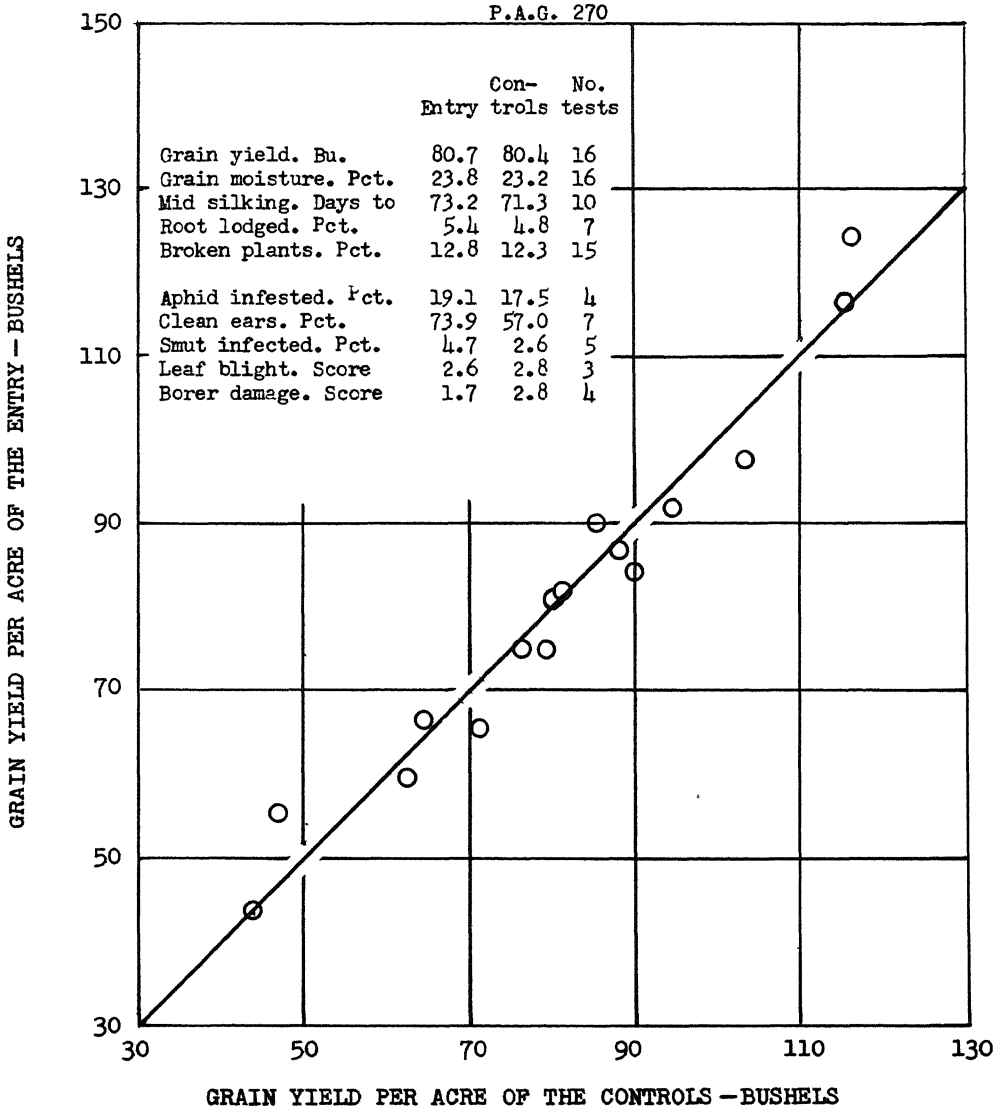
P.A.G. 60

	Entry	Controls	No. tests
Grain yield. Bu.	66.7	72.8	8
Grain moisture. Pct.	22.2	23.7	8
Mid silking. Days to	69.2	69.4	4
Root lodged. Pct.	13.9	5.2	2
Broken plants. Pct.	22.2	13.1	7
Aphid infested. Pct.	12.1	12.8	2
Clean ears. Pct.	79.5	56.1	4
Smut infected. Pct.	6.1	1.3	1
Leaf blight. Score	2.3	2.7	1
Borer damage. Score	2.6	2.7	2



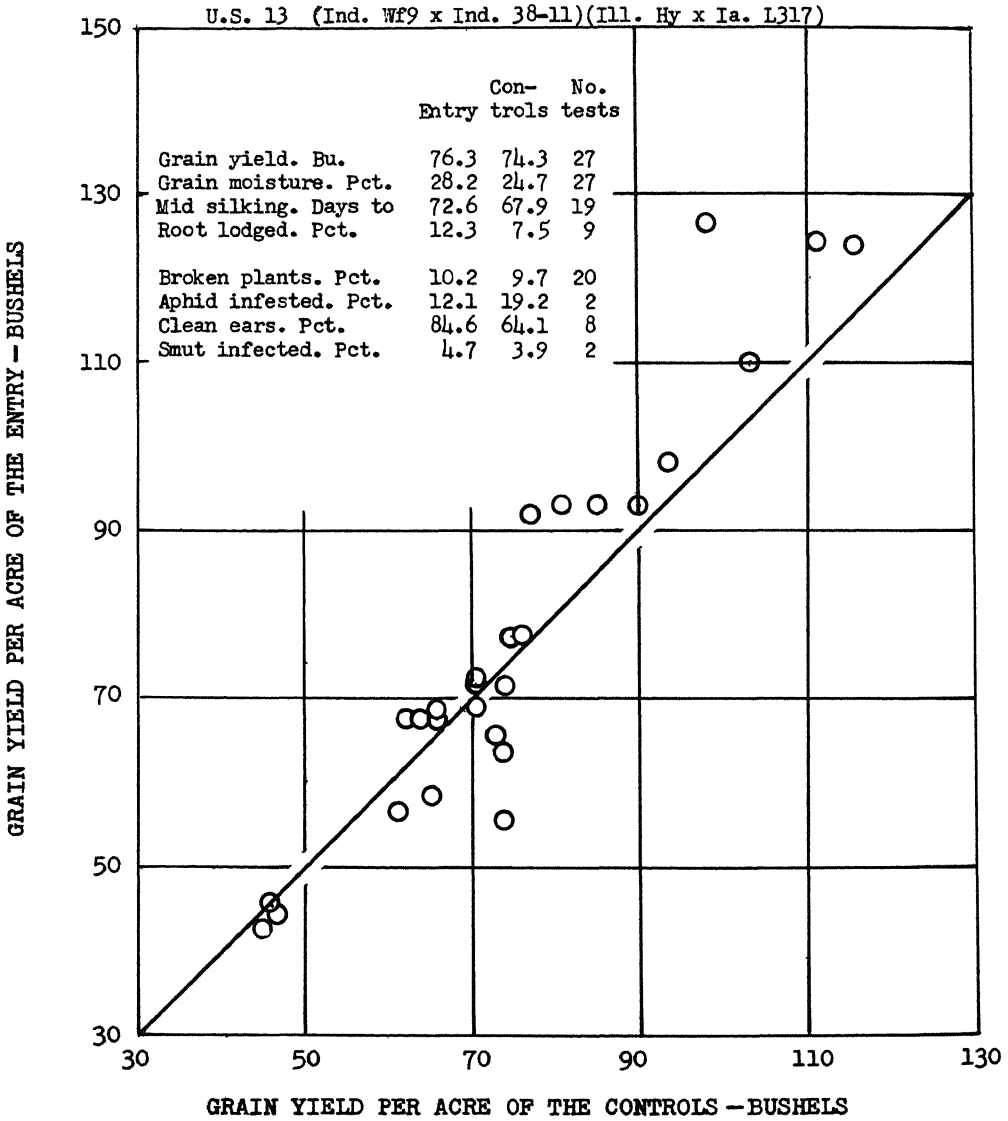
Northern Ohio

P.A.G. 270



Northern Ohio

U.S. 13 (Ind. Wf9 x Ind. 38-11)(Ill. Hy x Ia. L317)



Ohio 3166A
(Oh51A x Oh7B)(Oh40B x Oh41) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	97.0	87.0	4
Grain moisture. Pct.	25.2	22.0	4
Broken plants. Pct.	8.5	14.0	4
Aphid infested. Pct.	10.8	16.0	1
Clean ears. Pct.	72.5	56.1	4
Borer damage. Score	2.8	3.6	1

Ohio 3246
(Oh51A x Oh28)(Oh43 x Oh45) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	103.4	95.0	3
Grain moisture. Pct.	17.7	17.5	3
Mid silking. Days to	71.9	73.0	3
Root lodged. Pct.	1.6	3.3	3
Broken plants. Pct.	6.6	7.1	3
Clean ears. Pct.	52.4	33.9	1
Smut infected. Pct.	5.4	4.6	2
Leaf blight. Score	1.5	3.1	2
Borer damage. Score	1.3	3.3	1

Ohio 3247
(Oh51A x W22)(Oh43 x Oh45) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	100.5	95.0	3
Grain moisture. Pct.	17.6	17.5	3
Mid silking. Days to	71.8	73.0	3
Root lodged. Pct.	.9	3.1	3
Broken plants Pct.	3.8	7.1	3
Aphid infested. Pct.	1.9	3.3	1
Clean ears. Pct.	64.8	33.9	1
Smut infected. Pct.	6.4	4.6	2
Leaf blight. Score	2.3	3.1	2

Ohio 3250
(Oh28 x W22)(Oh43 x Oh45) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	110.1	95.0	3
Grain moisture. Pct.	19.2	17.5	3
Mid silking. Days to	73.5	73.0	3
Root lodged. Pct.	2.5	.4	3
Broken plants. Pct.	4.7	7.1	3
Clean ears. Pct.	53.9	33.9	1
Smut infected. Pct.	5.4	4.6	2
Leaf blight. Score	2.1	3.1	2
Borer damage. Score	2.4	3.3	1

Ohio 4807
(Pa. 71 x Oh43)(B8 x Oh51A) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	87.3	95.0	3
Grain moisture. Pct.	16.2	17.7	3
Mid silking. Days to	69.1	73.0	3
Root lodged. Pct.	3.1	3.1	3
Broken plants. Pct.	20.1	7.1	3
Clean ears. Pct.	19.8	33.9	1
Smut infected. Pct.	3.8	4.6	2
Leaf blight. Score	2.5	3.1	2
Borer damage. Score	4.0	3.3	1

Ohio 4817
(B8 x Oh51A)(A73 x Oh43) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	88.2	95.0	3
Grain moisture. Pct.	15.4	17.5	3
Mid silking. Days to	69.4	73.0	3
Root lodged. Pct.	.2	3.3	3
Broken plants. Pct.	12.5	7.1	3
Clean ears. Pct.	36.6	33.9	1
Smut infected. Pct.	4.1	4.6	2
Borer damage. Score	3.8	3.3	1

Ohio 3258
(Oh51A x Oh28)(Oh40B x Oh41) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	86.1	87.0	4
Grain moisture. Pct.	23.5	22.0	4
Broken plants. Pct.	17.1	14.1	4
Aphid infested. Pct.	1.5	16.0	1
Clean ears. Pct.	59.0	56.1	4
Borer damage. Score	2.6	3.6	1

Ohio 3251
(Wf9 x Oh7B)(Oh43 x Oh45) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	79.9	90.3	3
Grain moisture. Pct.	31.3	25.2	3
Mid silking. Days to	74.7	72.3	3
Broken plants. Pct.	2.9	8.6	1
Aphid infested. Pct.	17.9	30.1	1
Smut infected. Pct.	.7	.3	2
Borer damage. Score	1.4	2.5	1

Northern Ohio

Ohio 4819
(B8 x Oh43)(A73 x Oh51A) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	85.0	95.0	3
Grain moisture. Pct.	15.3	17.5	3
Mid silking. Days to	70.2	73.0	3
Root lodged. Pct.	.0	.4	3
Broken plants. Pct.	13.2	7.1	3
Clean ears. Pct.	41.7	33.9	1
Smut infected. Pct.	3.8	4.6	2
Leaf blight. Score	3.7	3.1	2
Borer damage. Score	2.8	3.3	1

Ohio 4820
(Oh28 x Oh43)(A73 x Oh51A) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	95.0	95.0	3
Grain moisture. Pct.	16.3	17.5	3
Mid silking. Days to	72.4	73.0	3
Root lodged. Pct.	.6	3.3	3
Broken plants. Pct.	11.1	7.1	3
Clean ears. Pct.	57.6	33.9	1
Smut infected. Pct.	3.5	4.6	2
Leaf blight. Score	1.9	3.1	2
Borer damage. Score	2.6	3.3	1

Southern Ohio

Funk G30

	Entry	Controls	No. tests
Grain yield. Bu.	84.8	95.8	3
Grain moisture. Pct.	19.6	18.7	3
Mid silking. Days to	59.6	59.5	3
Root lodged. Pct.	6.7	7.2	3
Broken plants. Pct.	4.0	2.9	3
Smut infected. Pct.	.3	.4	1
Leaf blight. Score	2.8	1.7	2

Funk G95

	Entry	Controls	No. tests
Grain yield. Bu.	95.7	99.4	3
Grain moisture. Pct.	21.6	20.7	3
Mid silking. Days to	68.8	66.6	3
Root lodged. Pct.	7.0	8.8	3
Broken plants. Pct.	11.1	6.9	3

Southern Ohio

Ohio 4811
(Oh28 x Oh7B)(Oh51A x Oh4C) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	113.6	99.4	3
Grain moisture. Pct.	21.2	20.8	3
Mid silking. Days to	69.4	66.6	3
Root lodged. Pct.	9.5	8.8	3
Broken plants. Pct.	8.2	7.9	3

Pioneer 344

	Entry	Controls	No. tests
Grain yield. Bu.	100.8	99.4	3
Grain moisture. Pct.	19.6	20.6	3
Mid silking. Days to	64.5	66.6	3
Root lodged. Pct.	16.2	8.9	3
Broken plants. Pct.	10.0	7.9	3

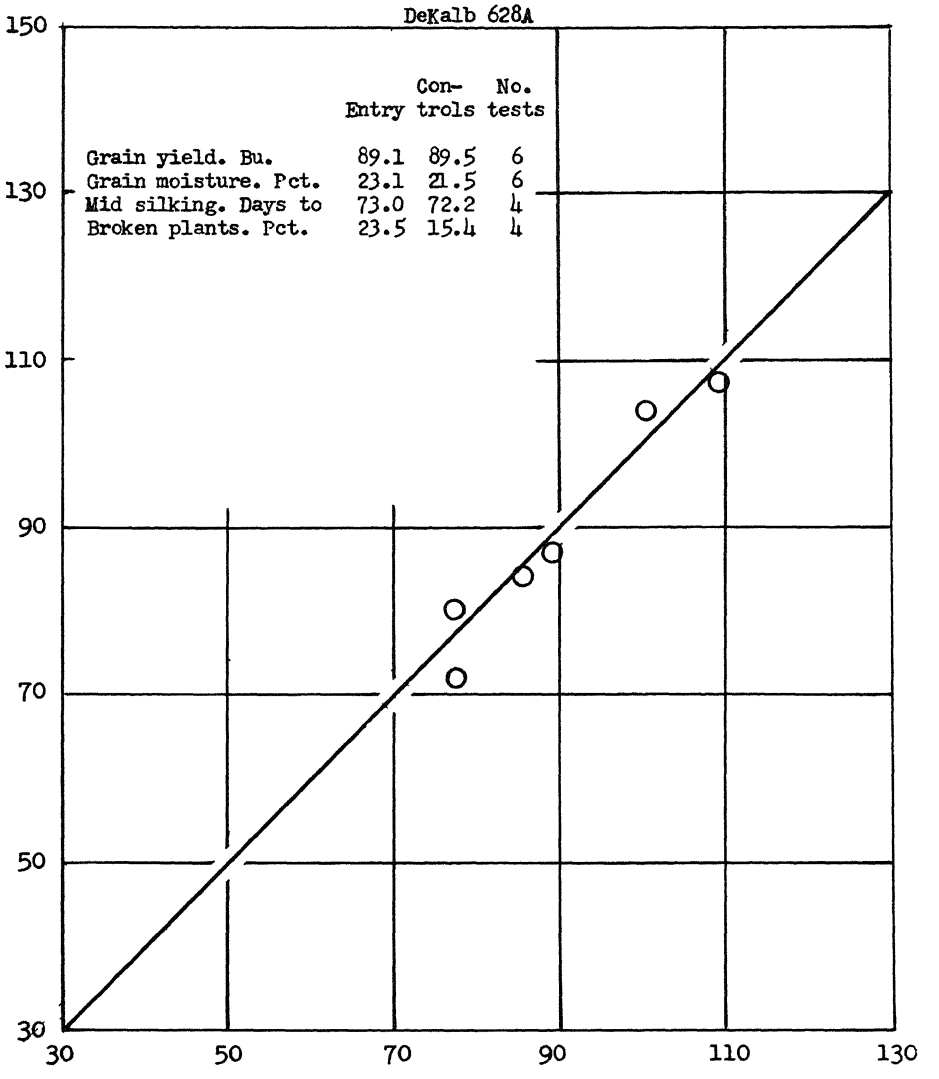
P.A.G. 270

	Entry	Controls	No. tests
Grain yield. Bu.	80.9	82.1	4
Grain moisture. Pct.	20.8	21.5	4
Mid silking. Days to	72.4	71.2	2
Broken plants. Pct.	17.5	15.3	4

Southern Ohio

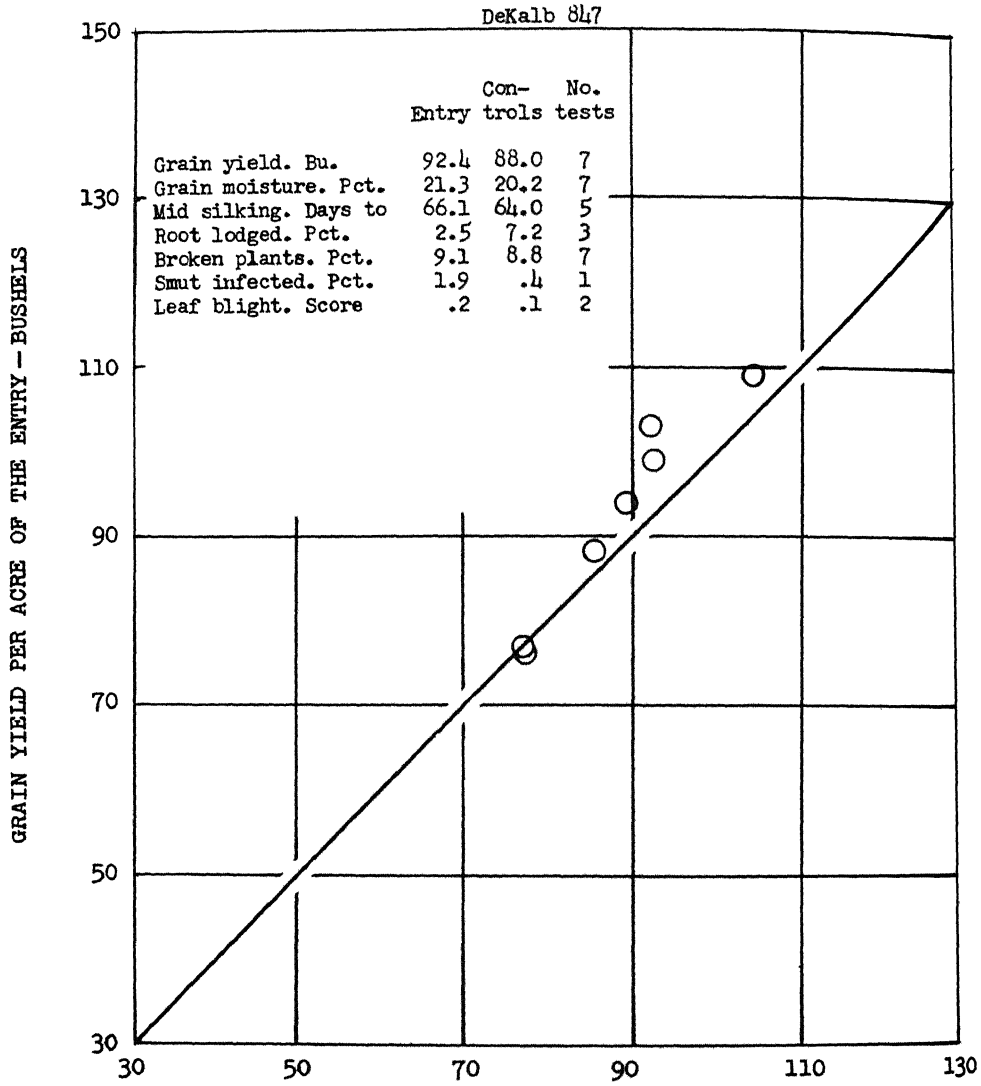
DeKalb 628A

	Entry	Con-trols	No. tests
Grain yield. Bu.	89.1	89.5	6
Grain moisture. Pct.	23.1	21.5	6
Mid silking. Days to	73.0	72.2	4
Broken plants. Pct.	23.5	15.4	4



Southern Ohio

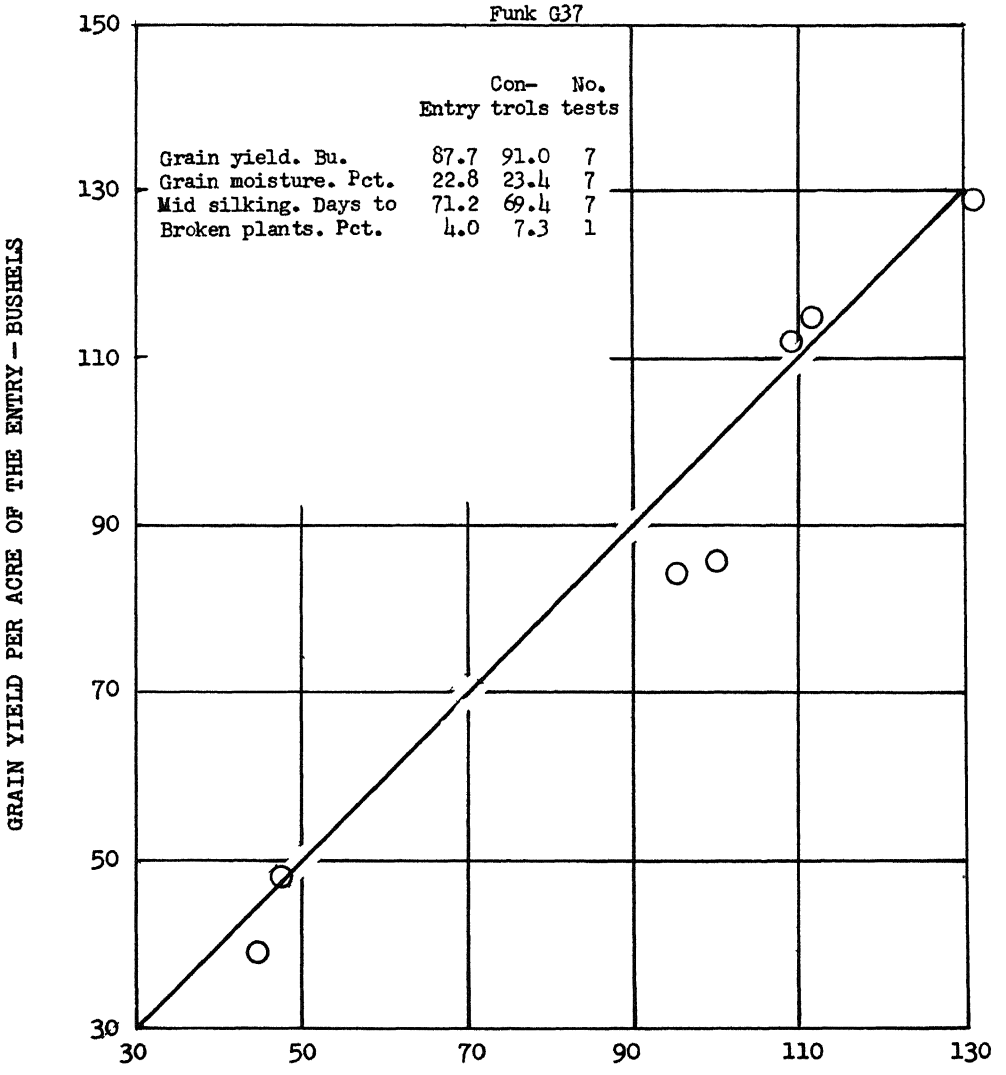
DeKalb 847



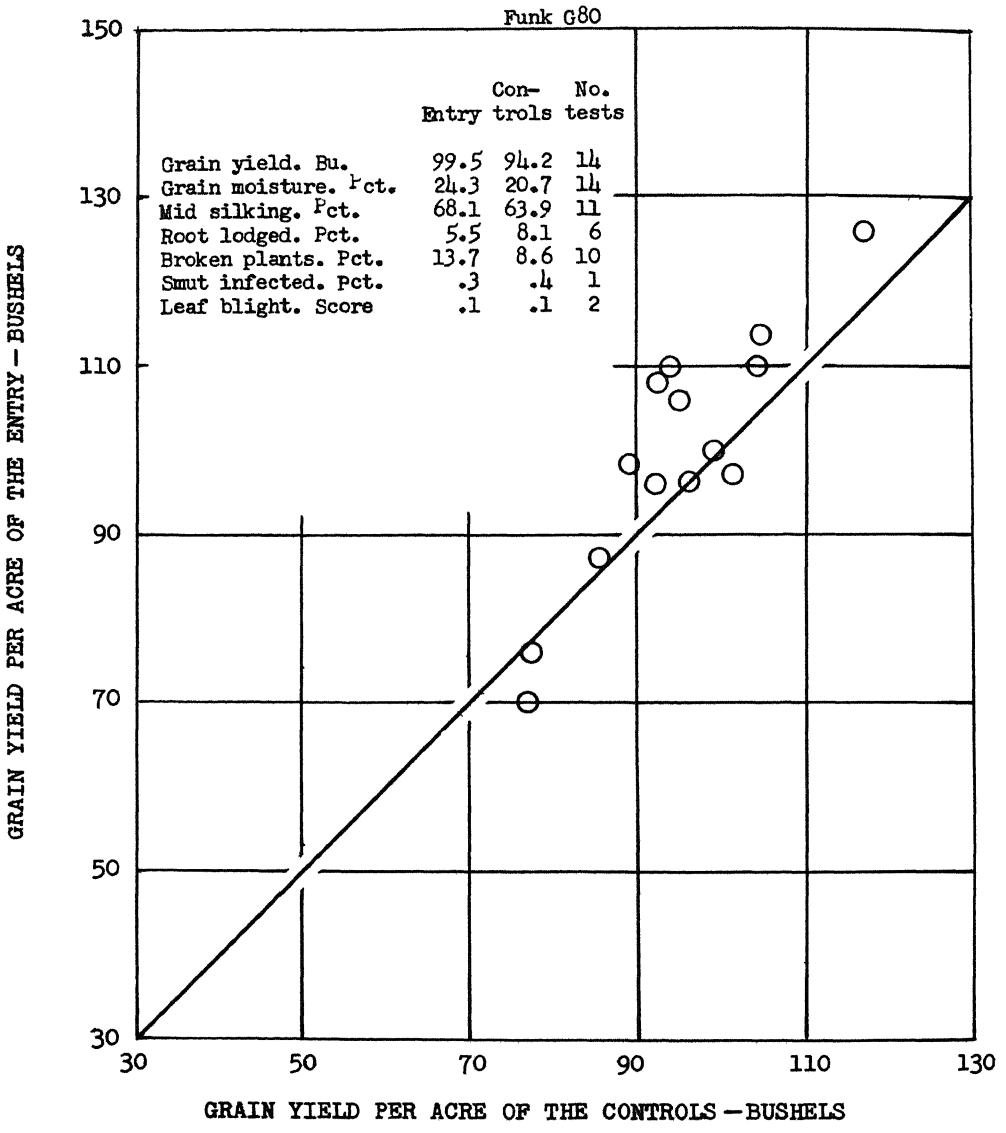
Southern Ohio

Funk G37

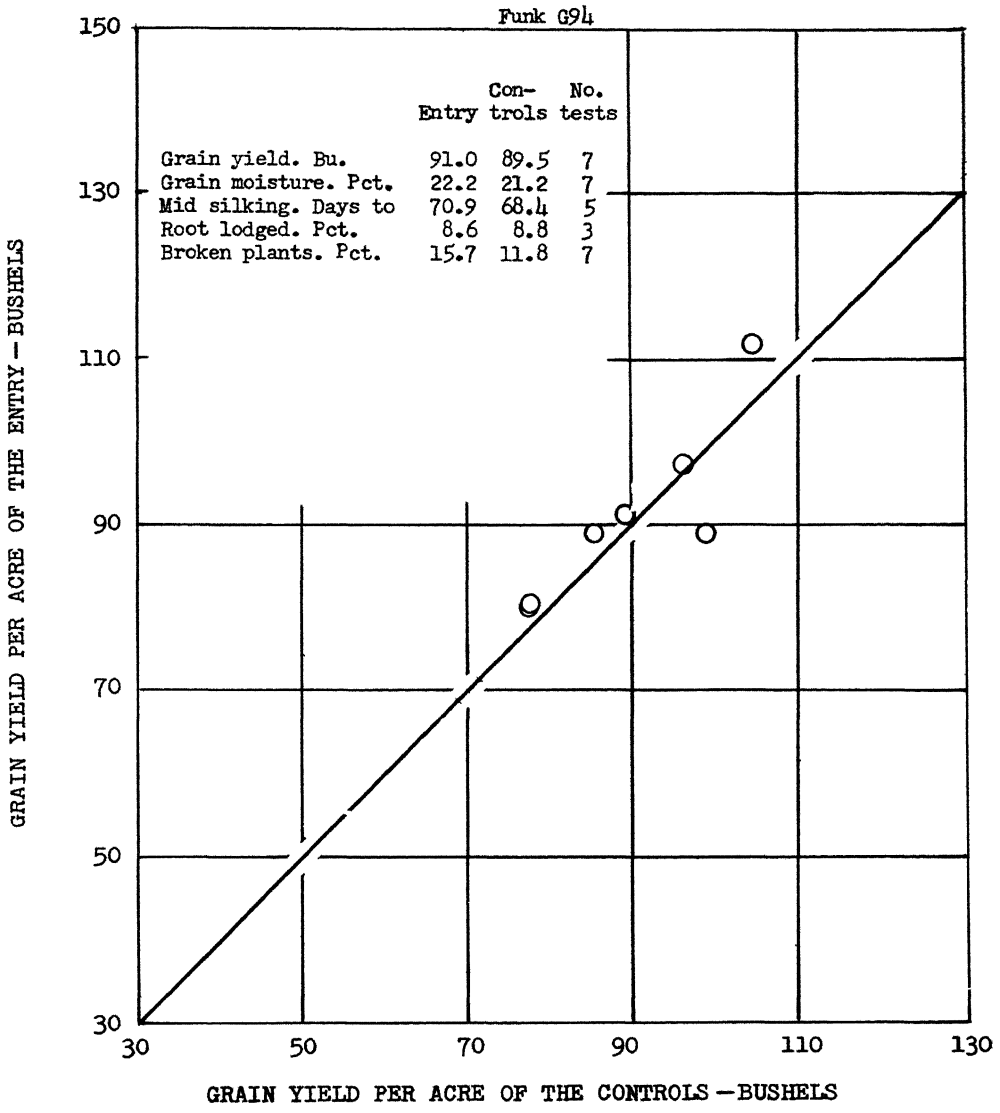
	Entry	Con-trols	No. tests
Grain yield. Bu.	87.7	91.0	7
Grain moisture. Pct.	22.8	23.4	7
Mid silking. Days to	71.2	69.4	7
Broken plants. Pct.	4.0	7.3	1



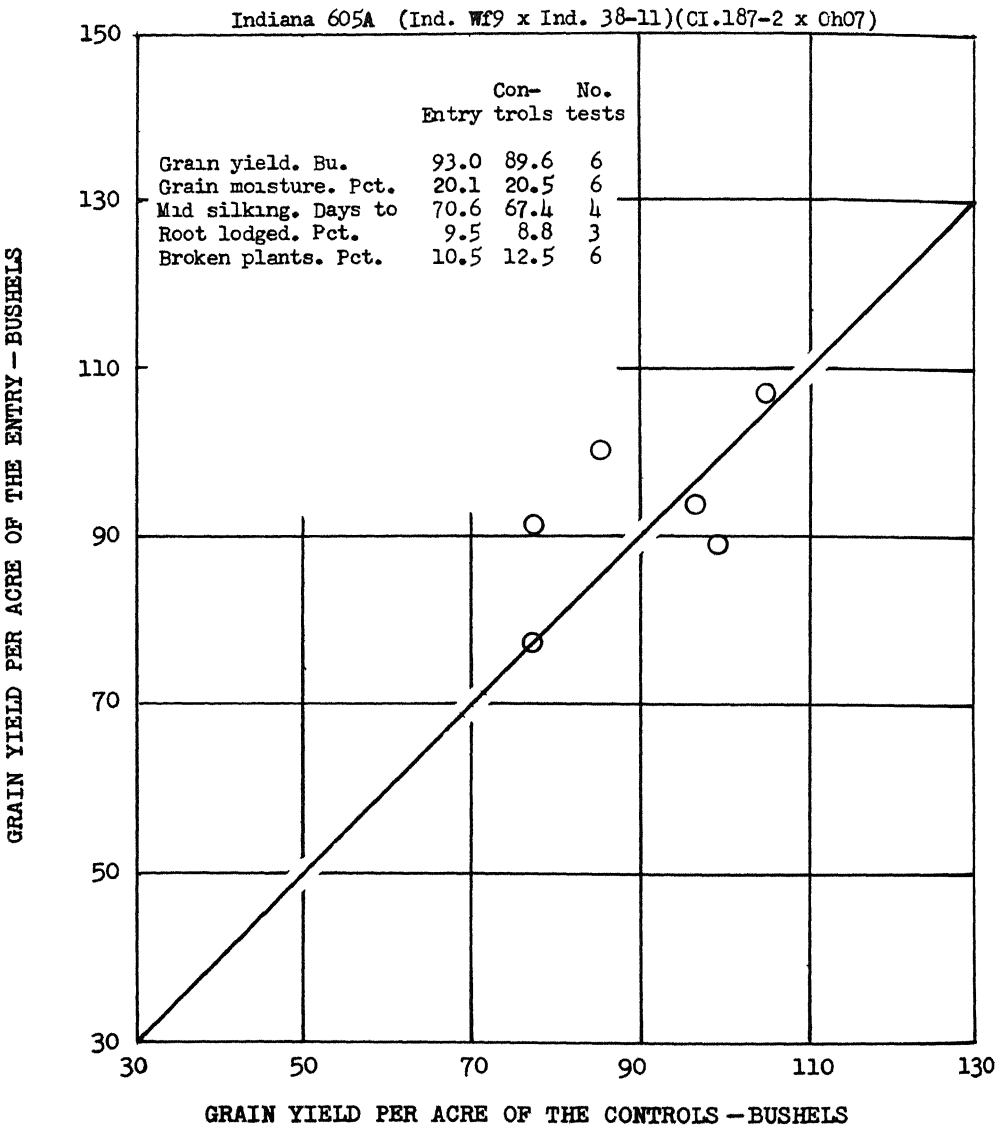
Southern Ohio



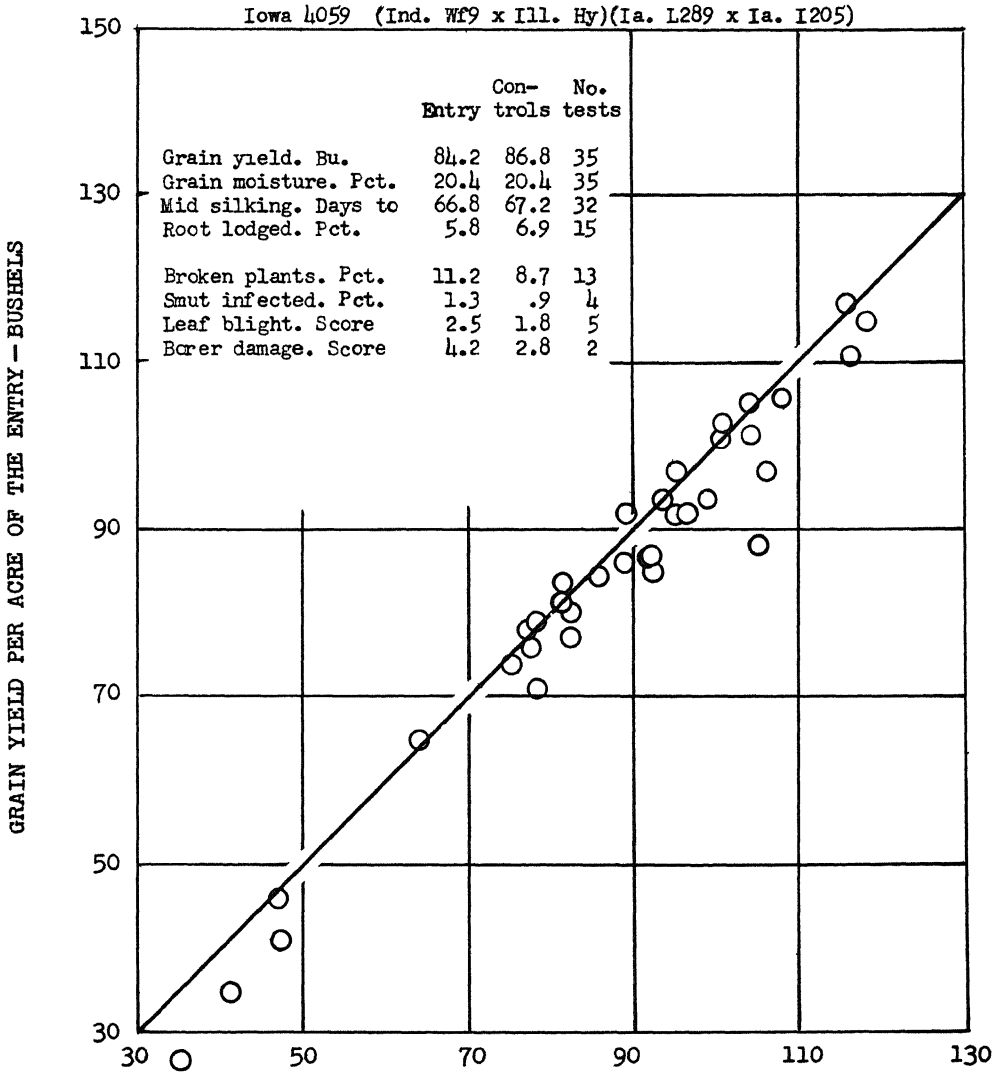
Southern Ohio



Southern Ohio



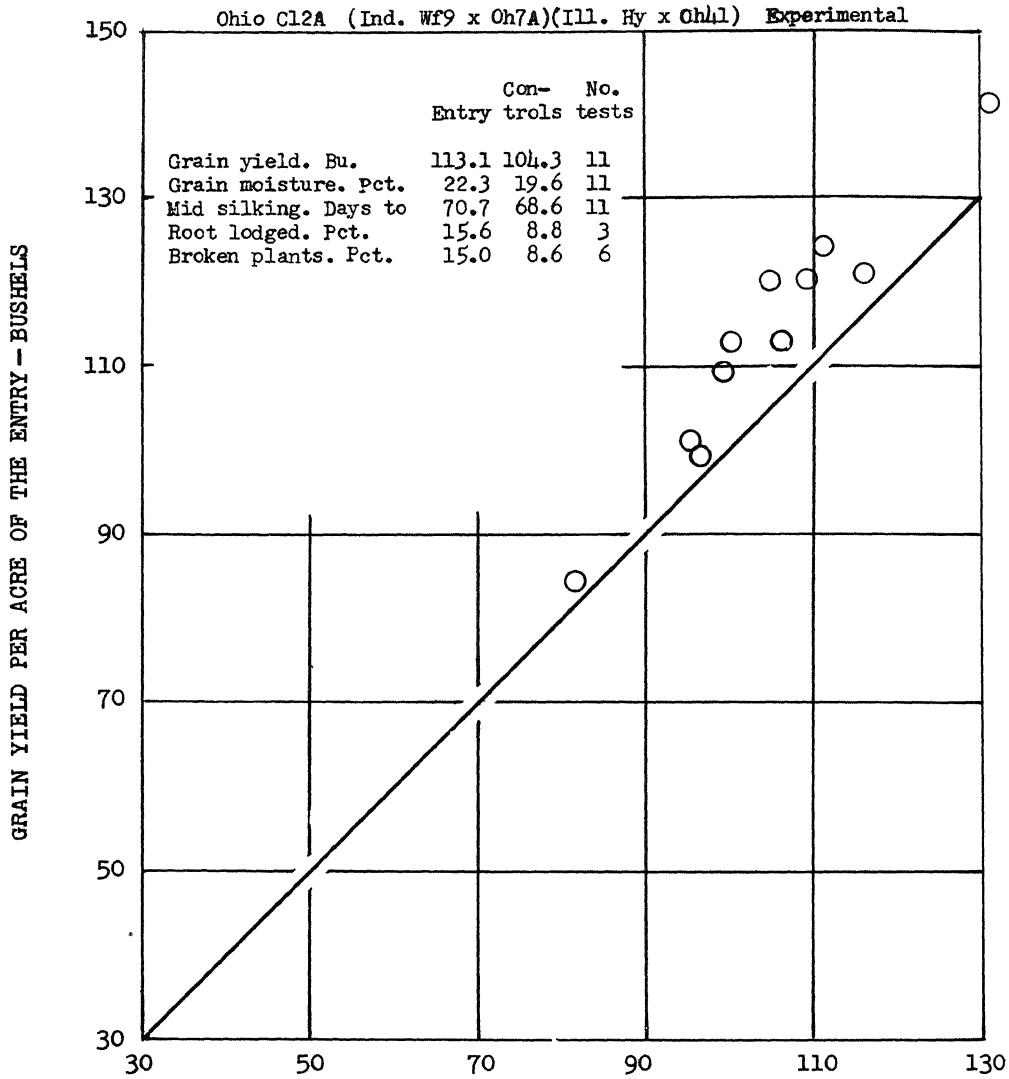
Southern Ohio



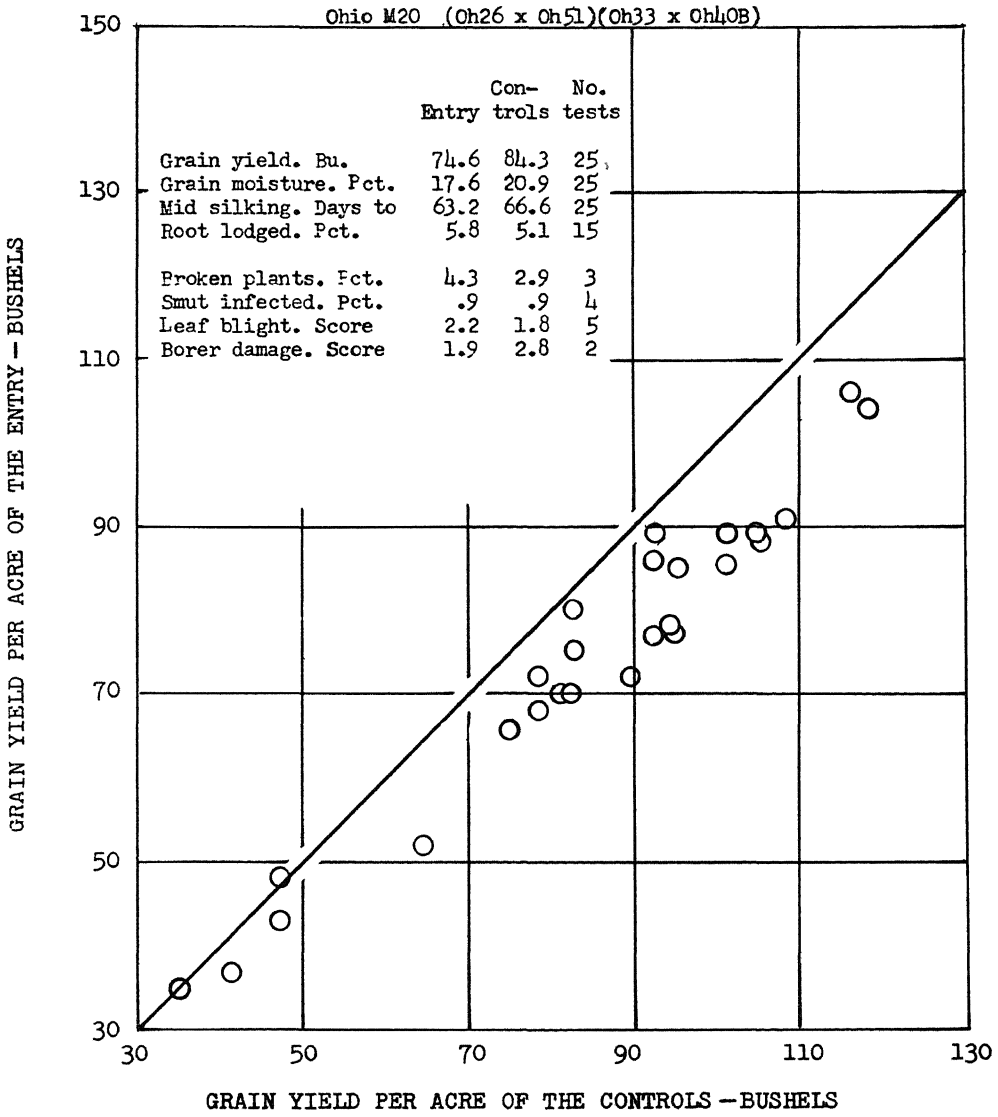
Southern Ohio

Ohio C12A (Ind. Wf9 x Oh7A)(Ill. Hy x Oh41) Experimental

Entry	Con-trols	No. tests
Grain yield. Bu.	113.1	104.3	11
Grain moisture. Pct.	22.3	19.6	11
Mid silking. Days to	70.7	68.6	11
Root lodged. Pct.	15.6	8.8	3
Broken plants. Pct.	15.0	8.6	6



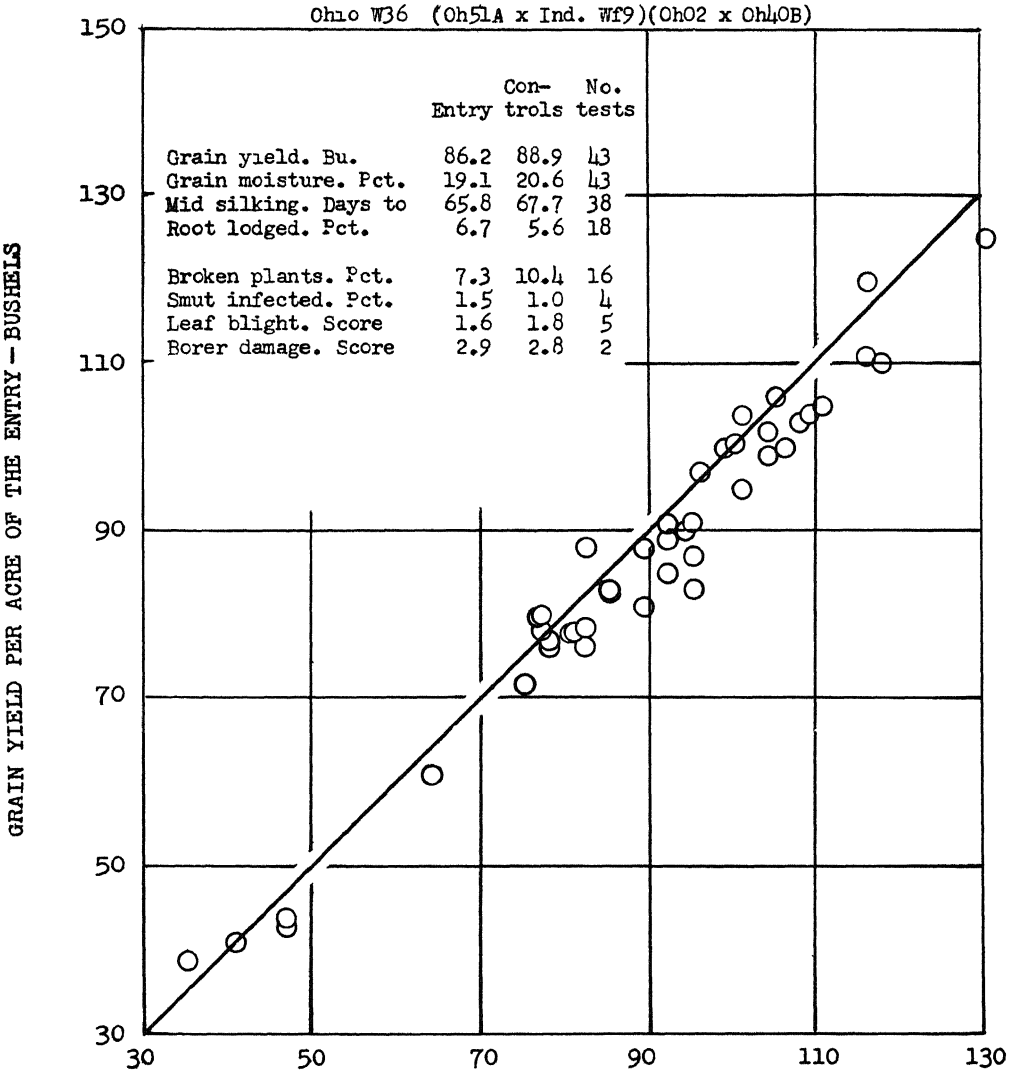
Southern Ohio



Southern Ohio

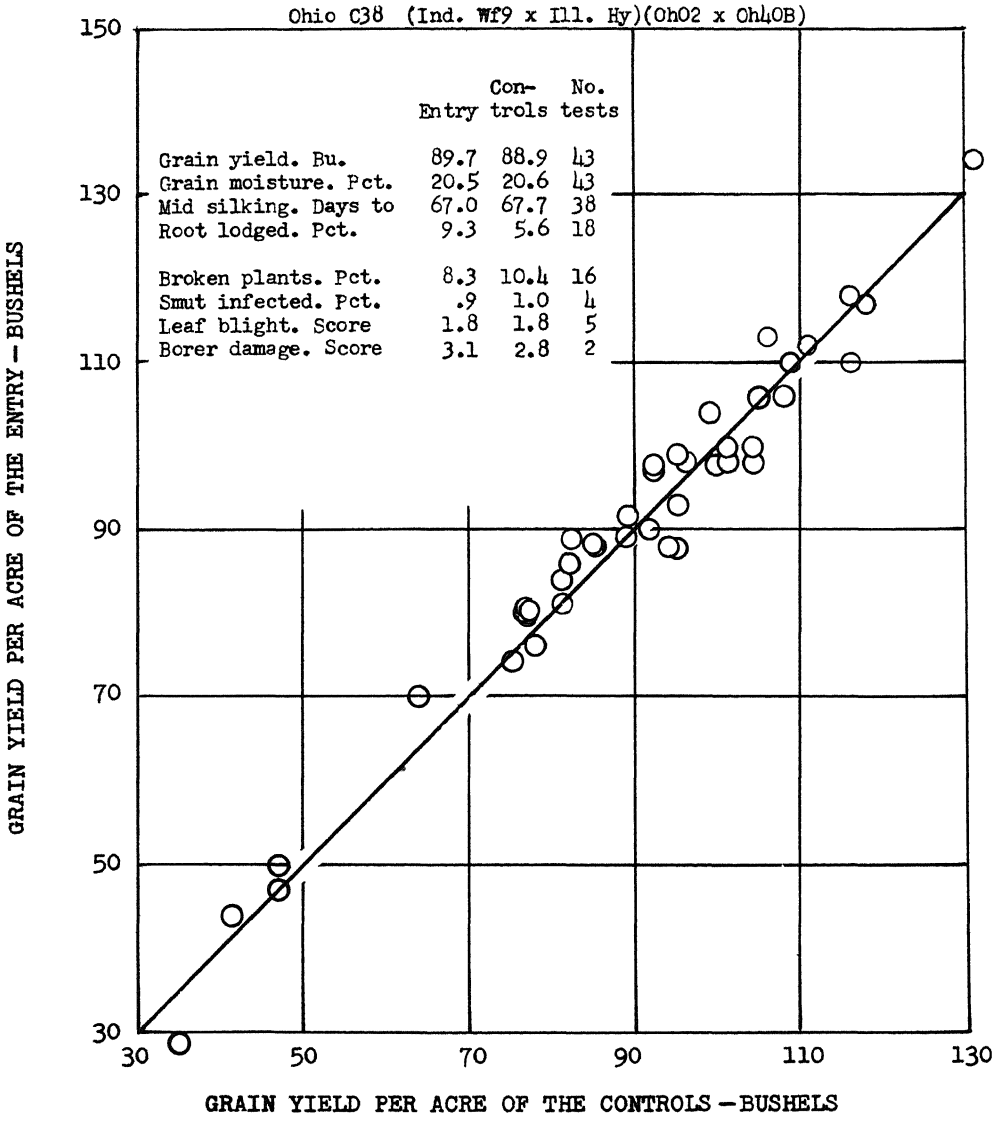
Ohio W36 (Oh51A x Ind. Wf9)(Oh02 x Oh40B)

	Entry	Controls	No. tests
Grain yield. Bu.	86.2	88.9	43
Grain moisture. Pct.	19.1	20.6	43
Mid silking. Days to	65.8	67.7	38
Root lodged. Pct.	6.7	5.6	18
Broken plants. Pct.	7.3	10.4	16
Smut infected. Pct.	1.5	1.0	4
Leaf blight. Score	1.6	1.8	5
Borer damage. Score	2.9	2.8	2

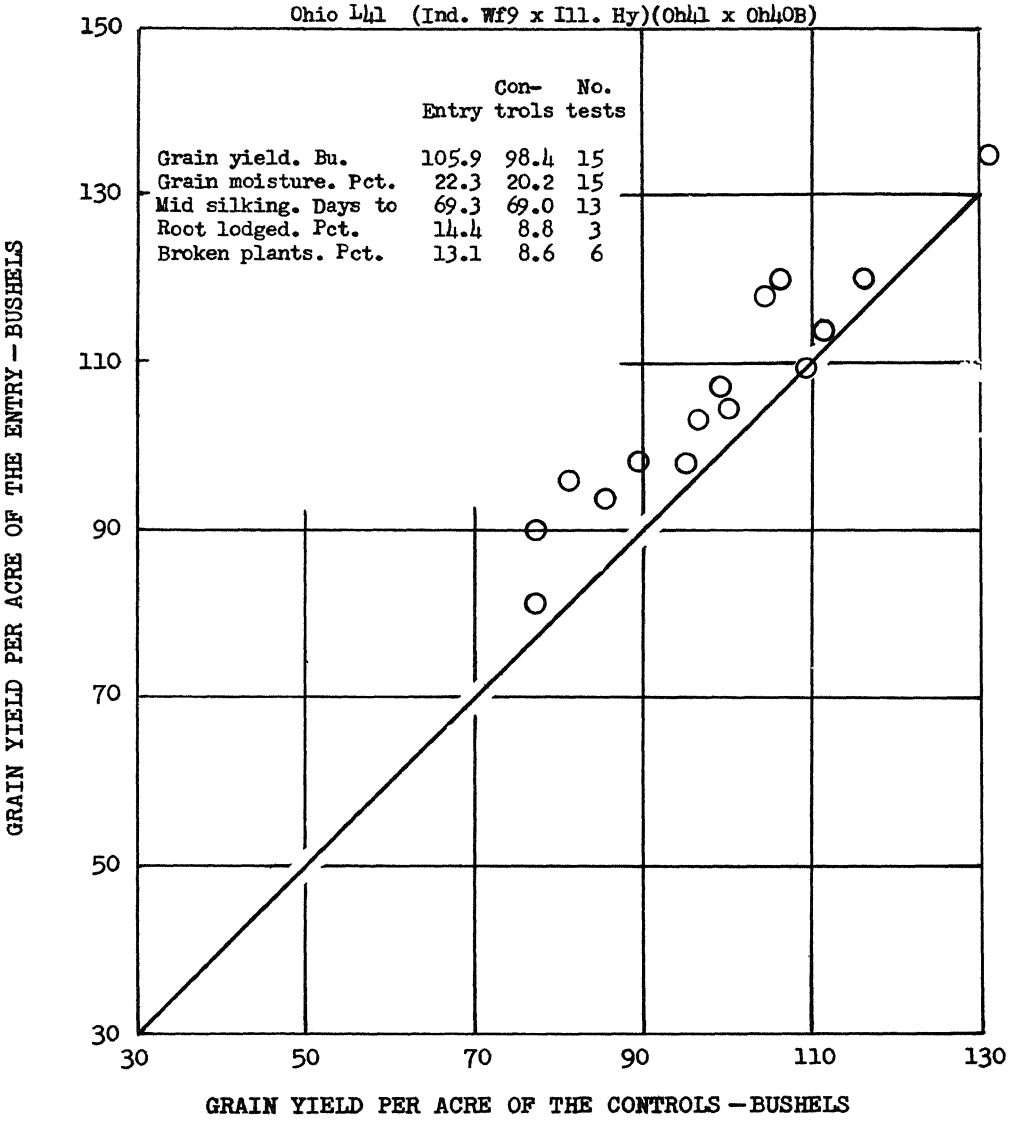


Southern Ohio

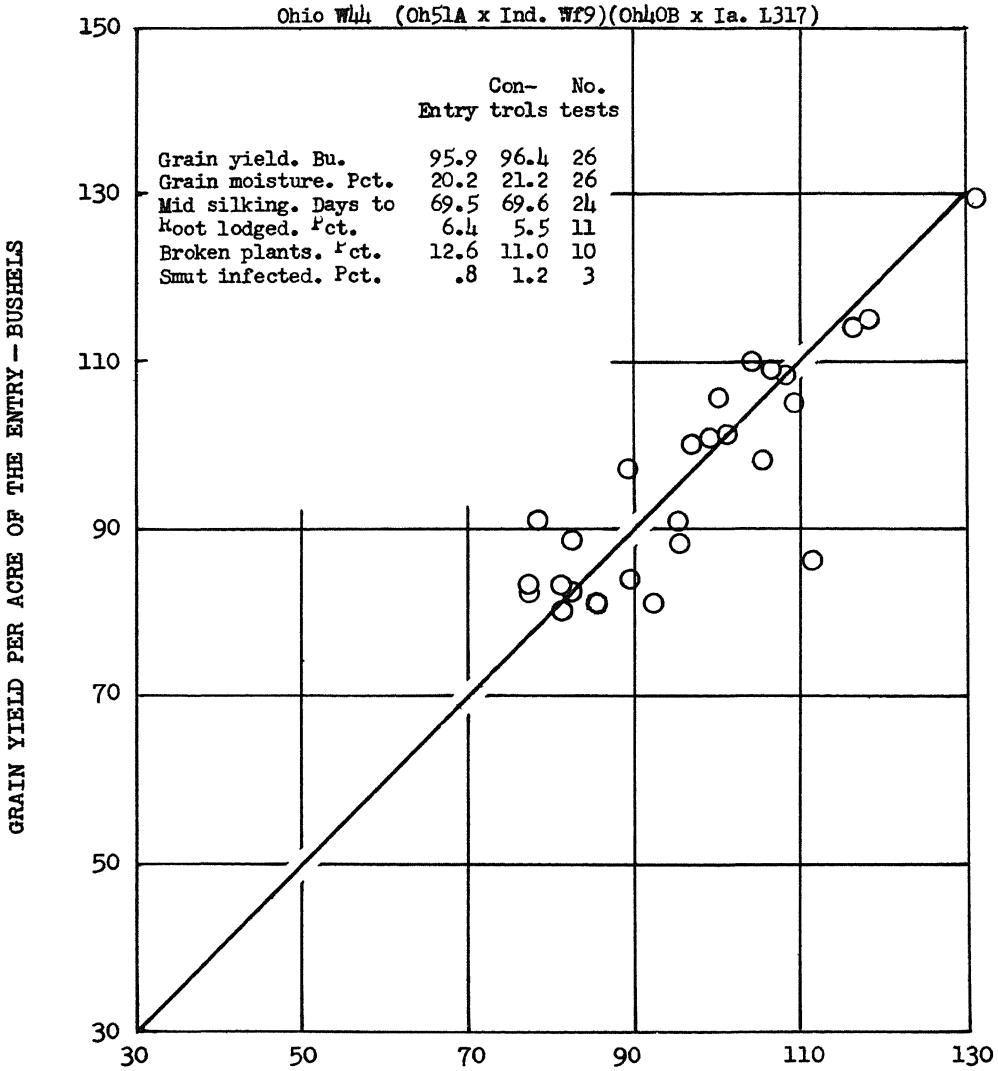
Ohio C38 (Ind. Wf9 x Ill. Hy)(OhO2 x Oh4OB)



Southern Ohio

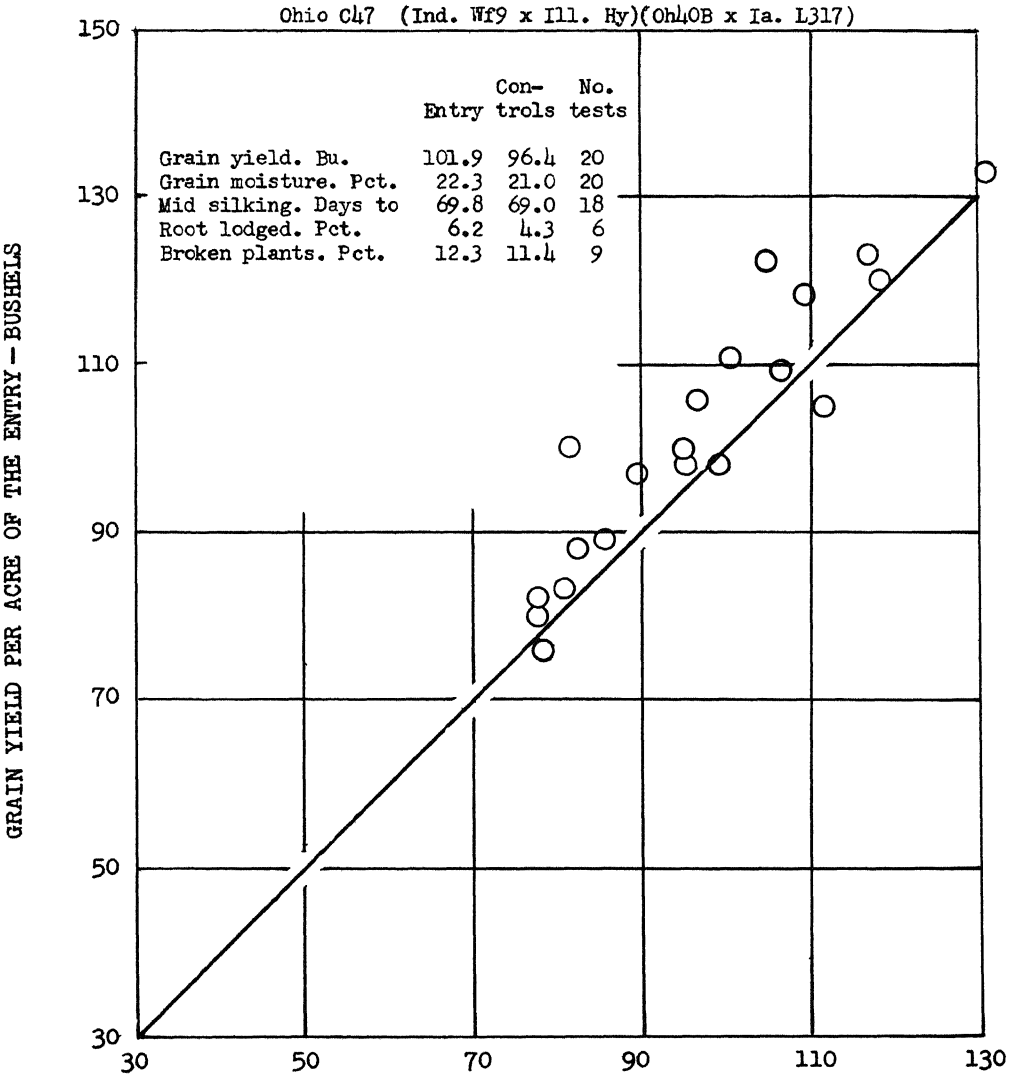


Southern Ohio



Southern Ohio

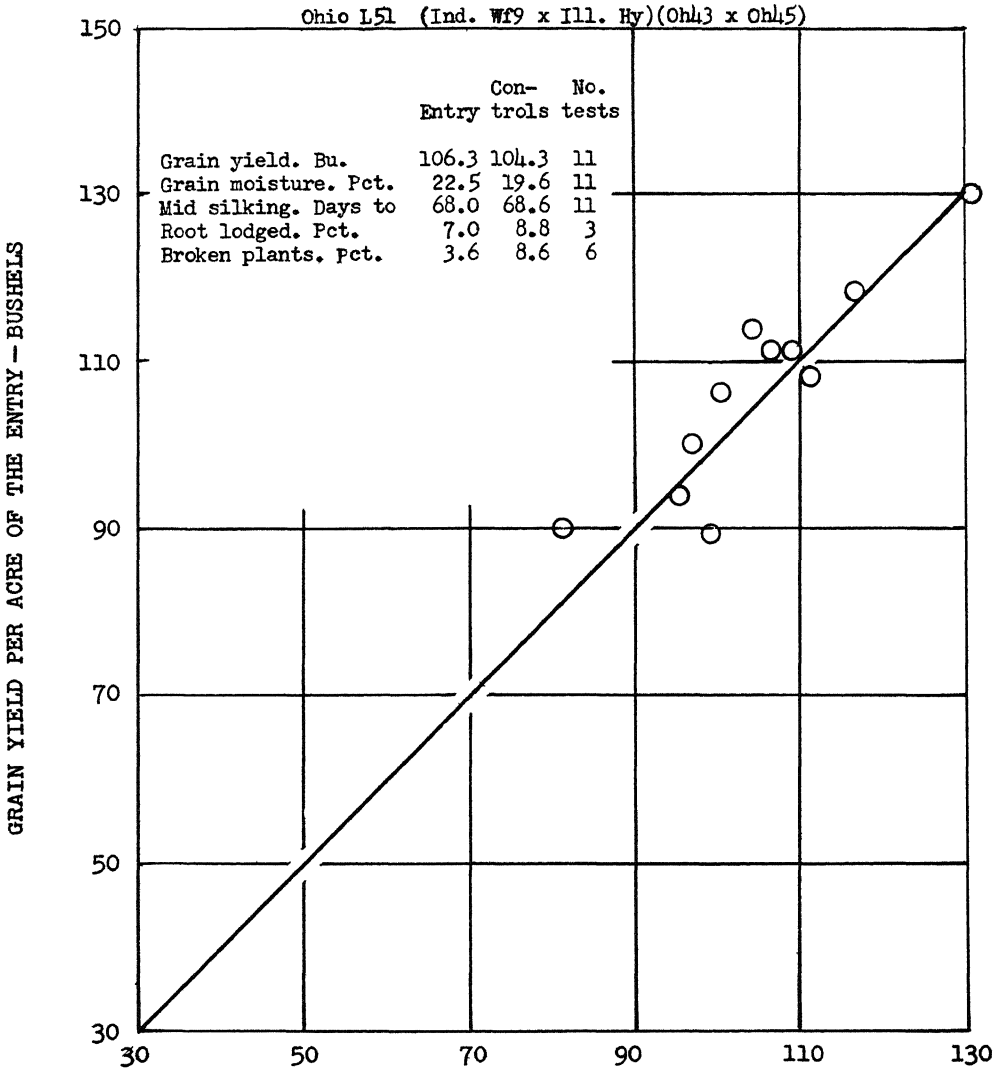
Ohio C47 (Ind. Wf9 x Ill. Hy)(Oh40B x Ia. L317)



Southern Ohio

Ohio L51 (Ind. Wf9 x Ill. Hy)(Oh43 x Oh45)

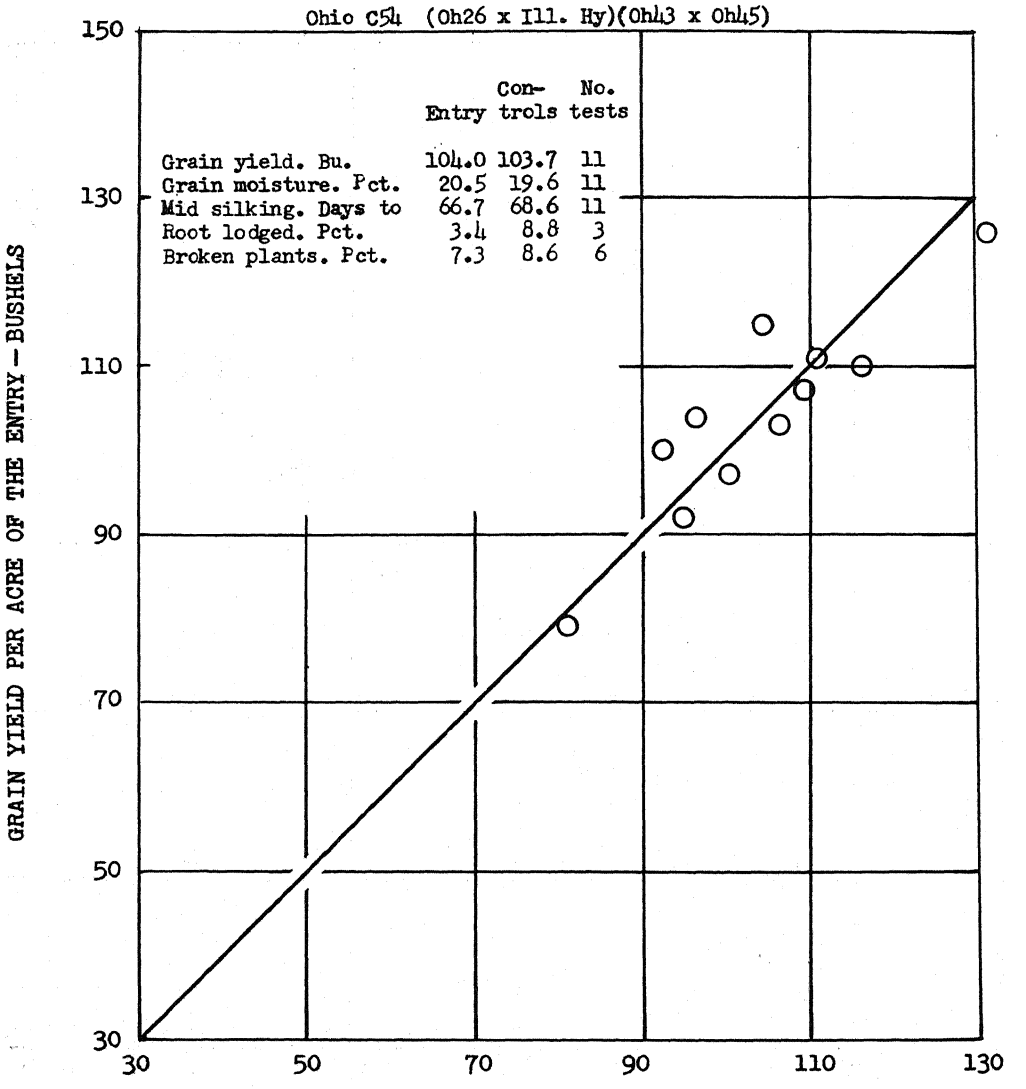
	Entry	Con-trols	No. tests
Grain yield. Bu.	106.3	104.3	11
Grain moisture. Pct.	22.5	19.6	11
Mid silking. Days to	68.0	68.6	11
Root lodged. Pct.	7.0	8.8	3
Broken plants. Pct.	3.6	8.6	6



Southern Ohio

Ohio C54 (Oh26 x Ill. Hy)(Oh43 x Oh45)

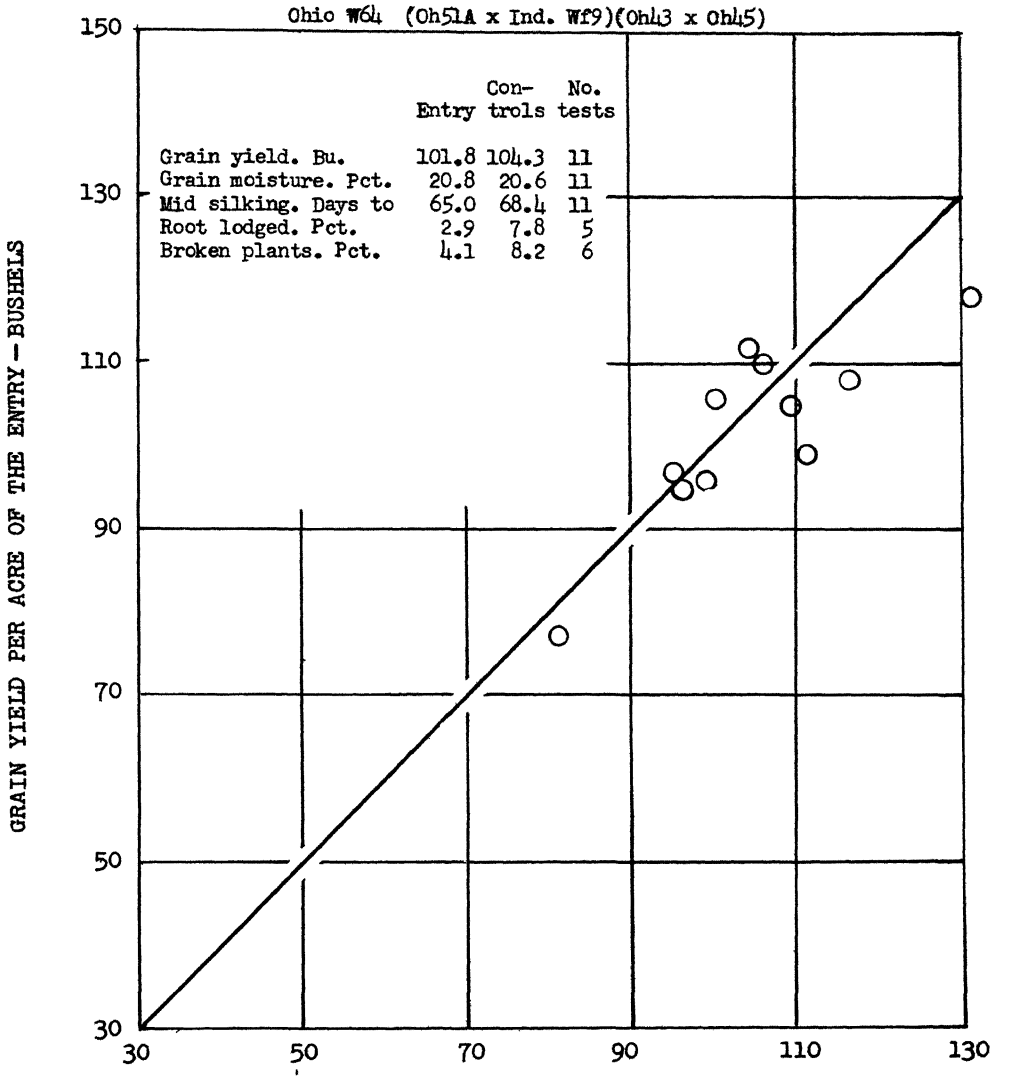
	Entry	Controls	No. tests
Grain yield. Bu.	104.0	103.7	11
Grain moisture. Pct.	20.5	19.6	11
Mid silking. Days to	66.7	68.6	11
Root lodged. Pct.	3.4	8.8	3
Broken plants. Pct.	7.3	8.6	6



Southern Ohio

Ohio W64 (Oh51A x Ind. Wf9)(Oh43 x Oh45)

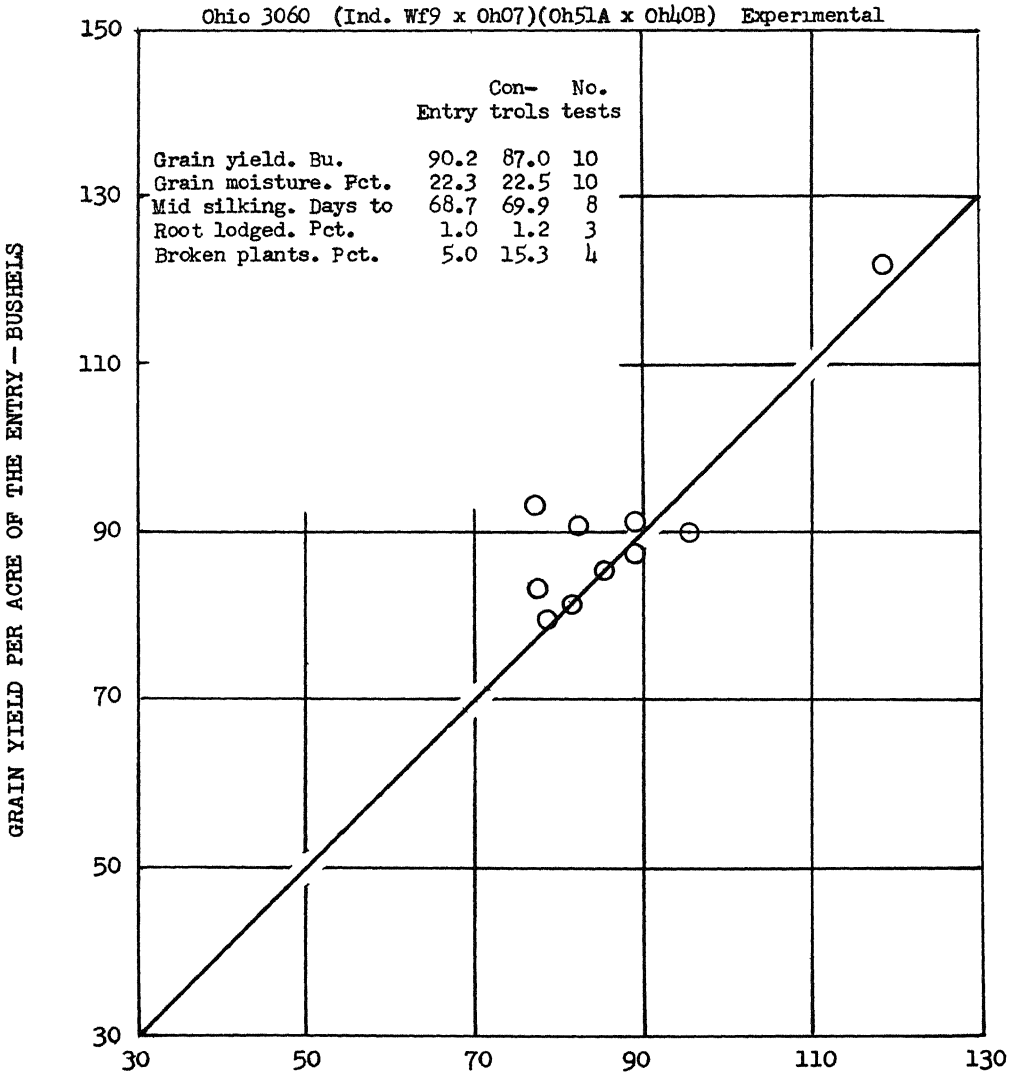
	Entry	Controls	No. tests
Grain yield. Bu.	101.8	104.3	11
Grain moisture. Pct.	20.8	20.6	11
Mid silking. Days to	65.0	68.4	11
Root lodged. Pct.	2.9	7.8	5
Broken plants. Pct.	4.1	8.2	6



Southern Ohio

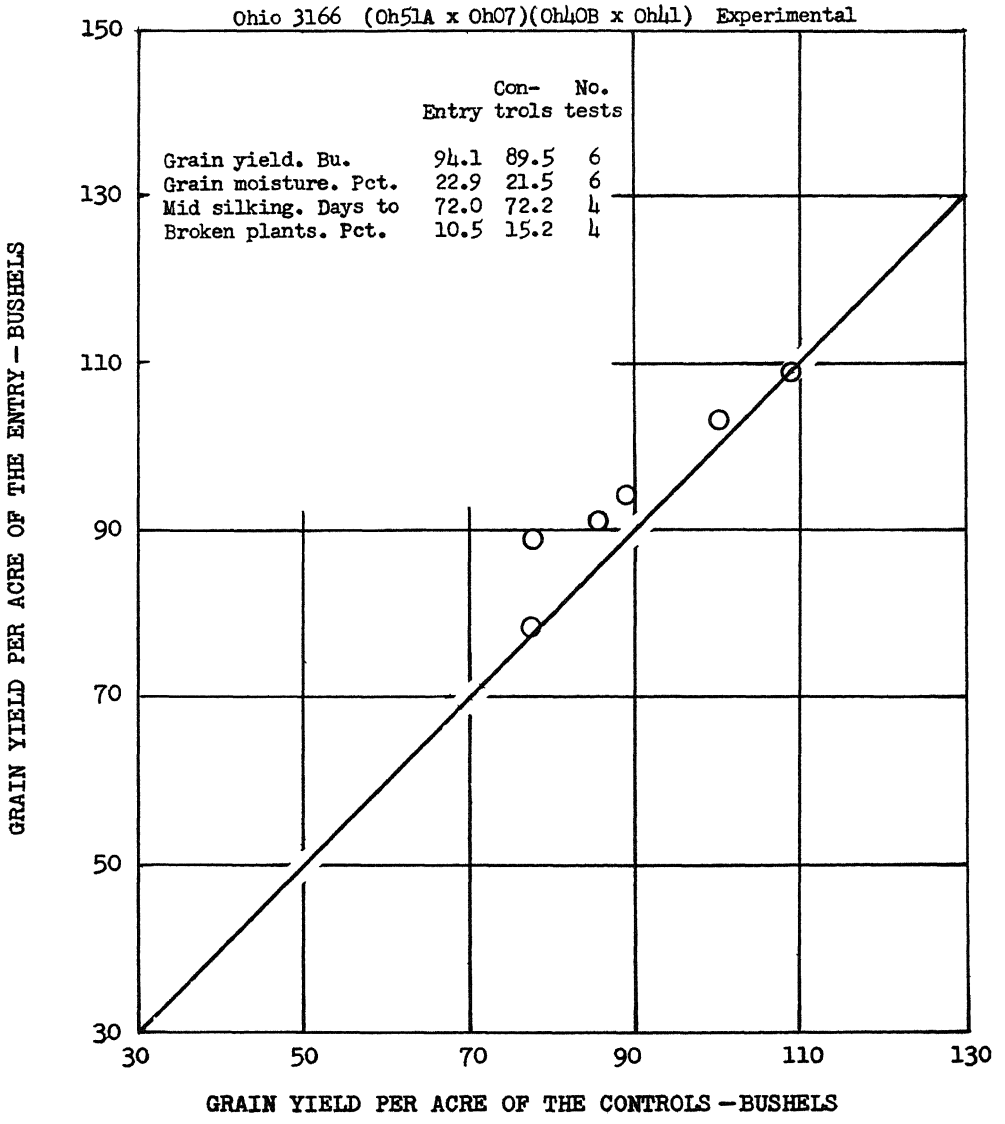
Ohio 3060 (Ind. Wf9 x Oh07)(Oh51A x Oh40B) Experimental

	Entry	Con-trols	No. tests
Grain yield. Bu.	90.2	87.0	10
Grain moisture. Pct.	22.3	22.5	10
Mid silking. Days to	68.7	69.9	8
Root lodged. Pct.	1.0	1.2	3
Broken plants. Pct.	5.0	15.3	4



Southern Ohio

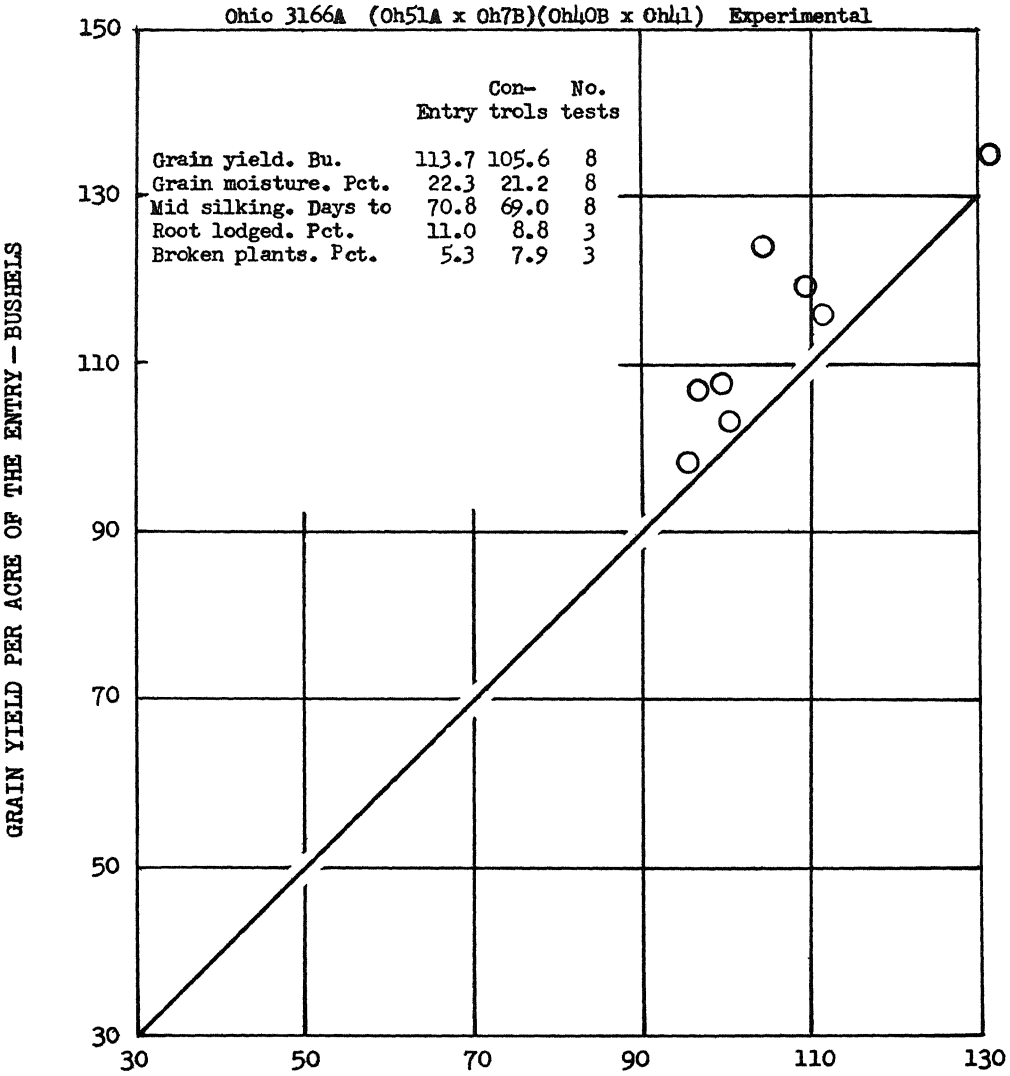
Ohio 3166 (Oh51A x Oh07)(Oh4OB x Oh41) Experimental



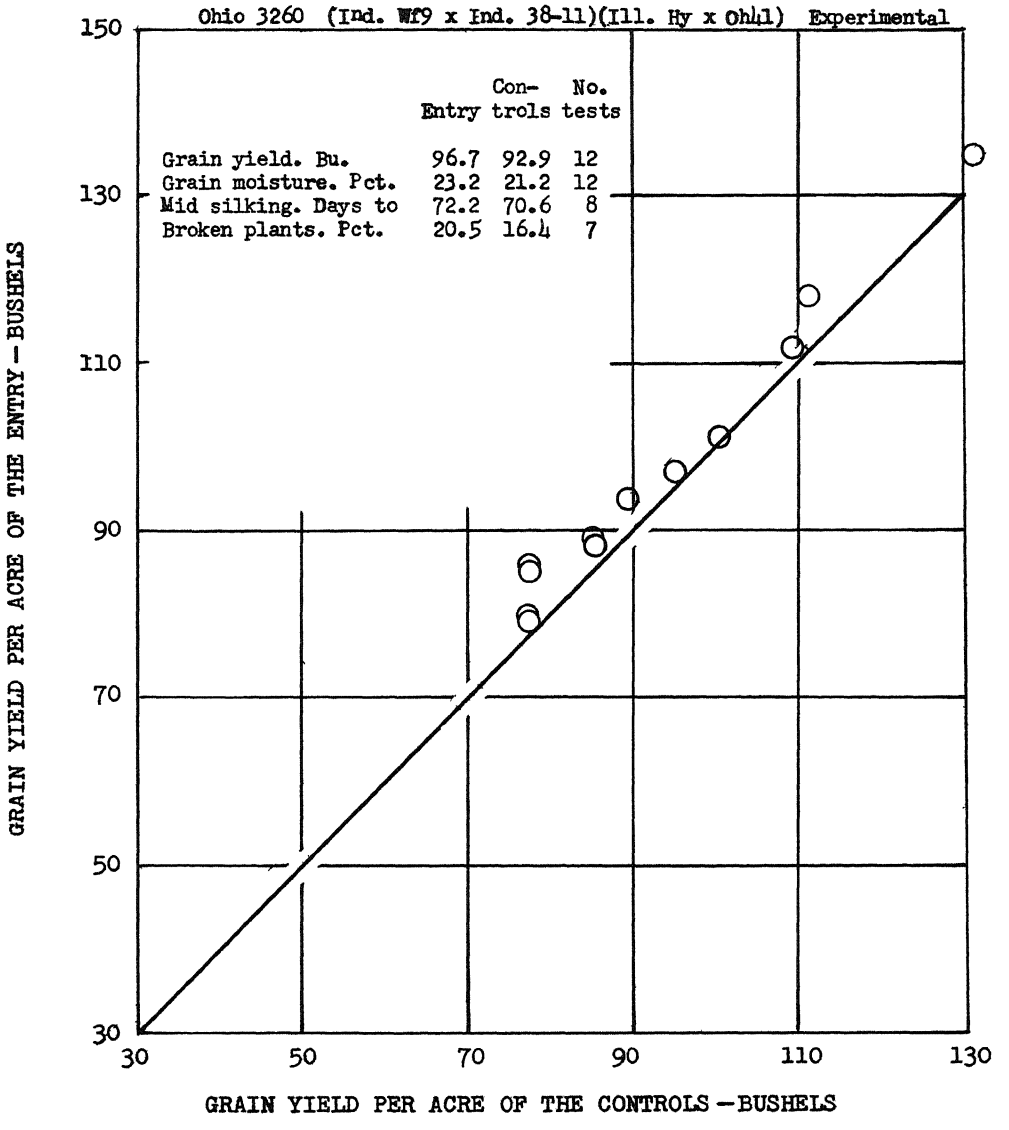
Southern Ohio

Ohio 3166A (Oh51A x Oh7B)(Oh4OB x Oh41) Experimental

	Entry	Con-trols	No. tests
Grain yield. Bu.	113.7	105.6	8
Grain moisture. Pct.	22.3	21.2	8
Mid silking. Days to	70.8	69.0	8
Root lodged. Pct.	11.0	8.8	3
Broken plants. Pct.	5.3	7.9	3

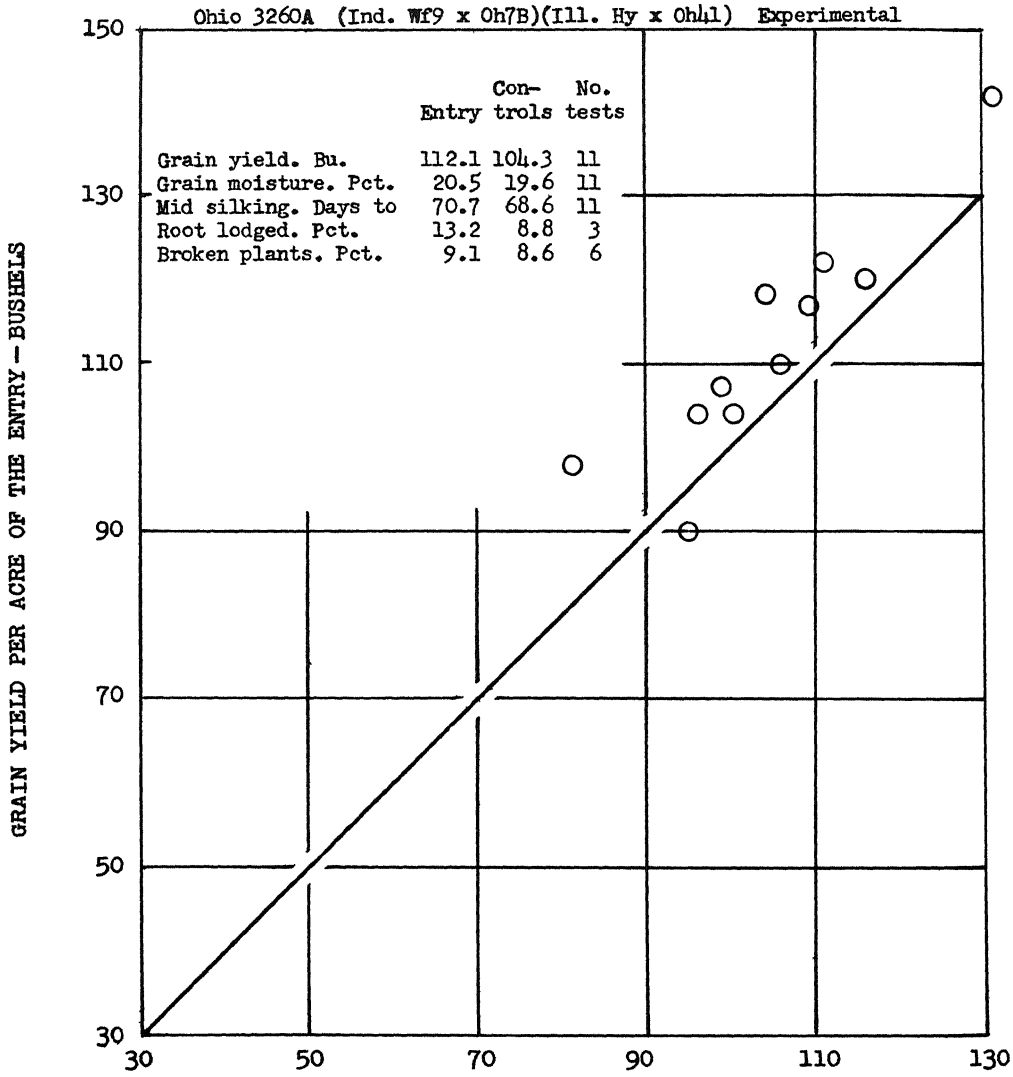


Southern Ohio



Southern Ohio

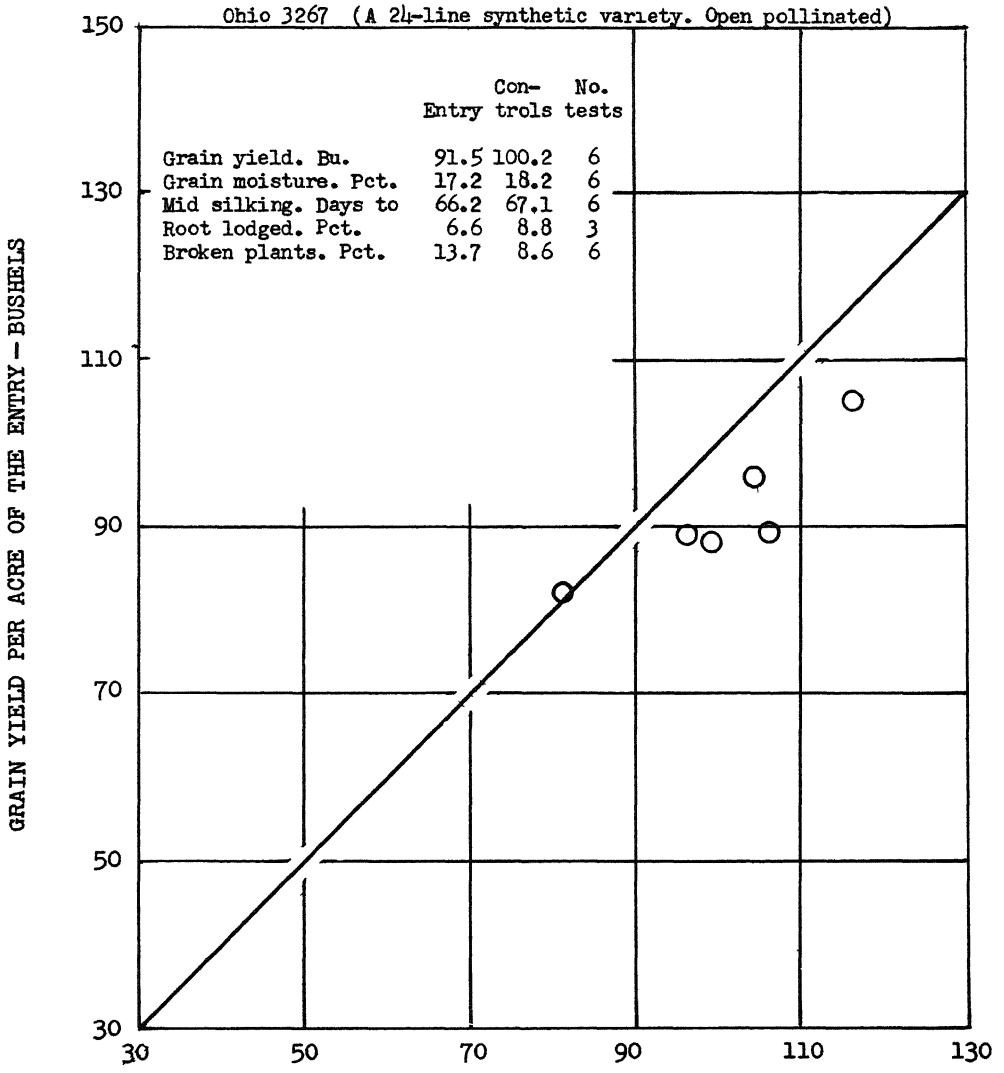
Ohio 3260A (Ind. Wf9 x Oh7B)(Ill. Hy x Oh41) Experimental



Southern Ohio

Ohio 3267 (A 24-line synthetic variety. Open pollinated)

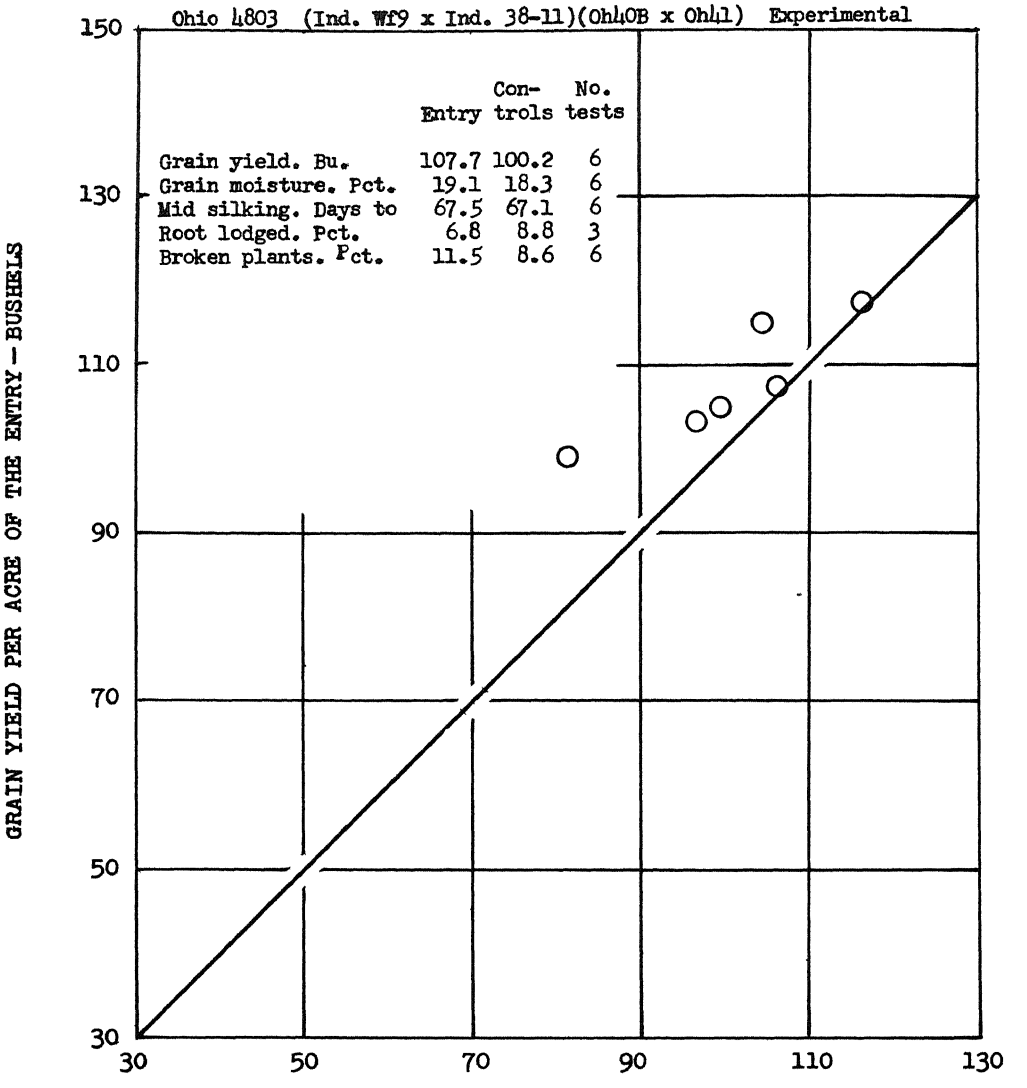
	Entry	Con-trols	No. tests
Grain yield. Bu.	91.5	100.2	6
Grain moisture. Pct.	17.2	18.2	6
Mid silking. Days to	66.2	67.1	6
Root lodged. Pct.	6.6	8.8	3
Broken plants. Pct.	13.7	8.6	6



Southern Ohio

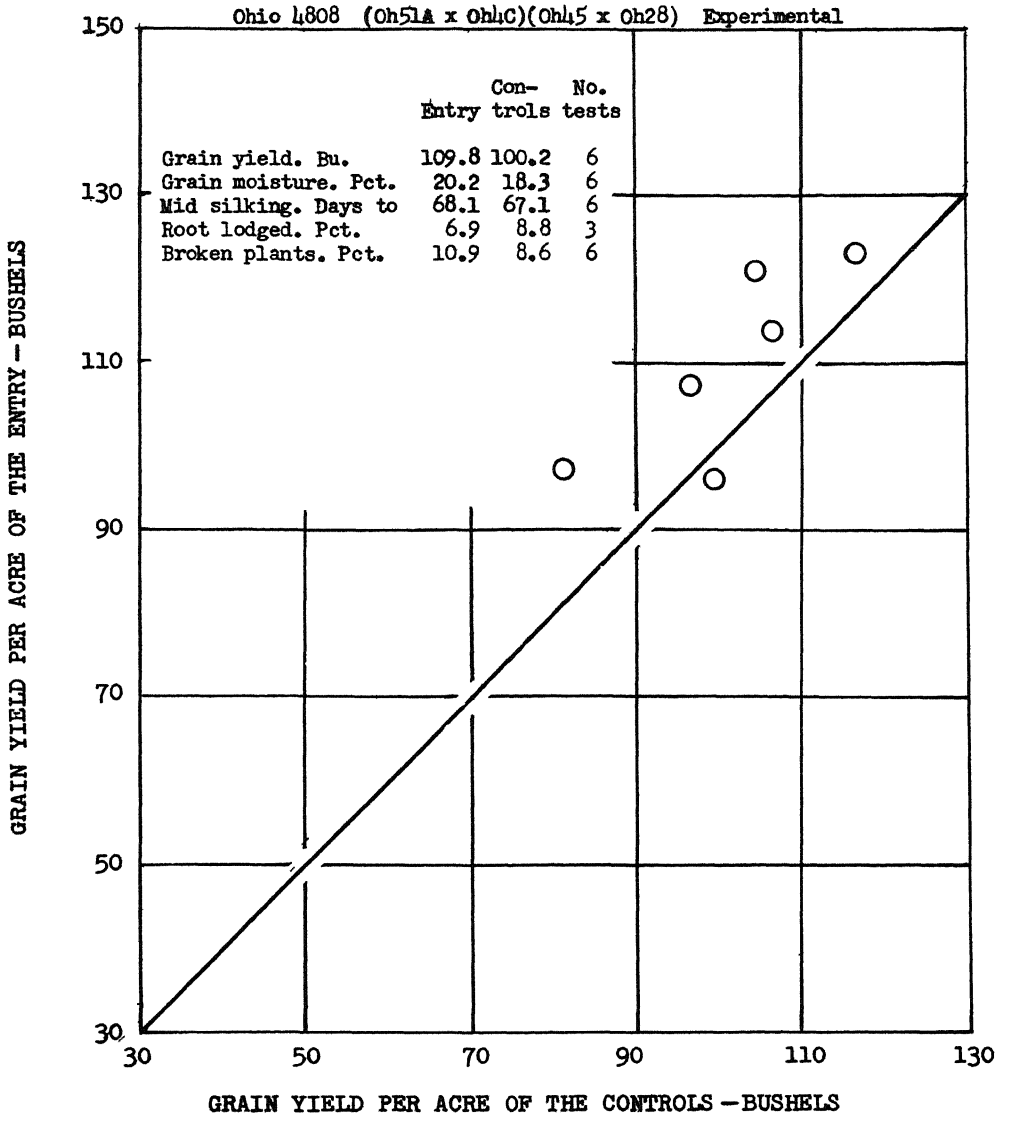
Ohio 4803 (Ind. Wf9 x Ind. 38-11)(Oh40B x Oh41) Experimental

	Entry	Controls	No. tests
Grain yield. Bu.	107.7	100.2	6
Grain moisture. Pct.	19.1	18.3	6
Mid silking. Days to	67.5	67.1	6
Root lodged. Pct.	6.8	8.8	3
Broken plants. Pct.	11.5	8.6	6

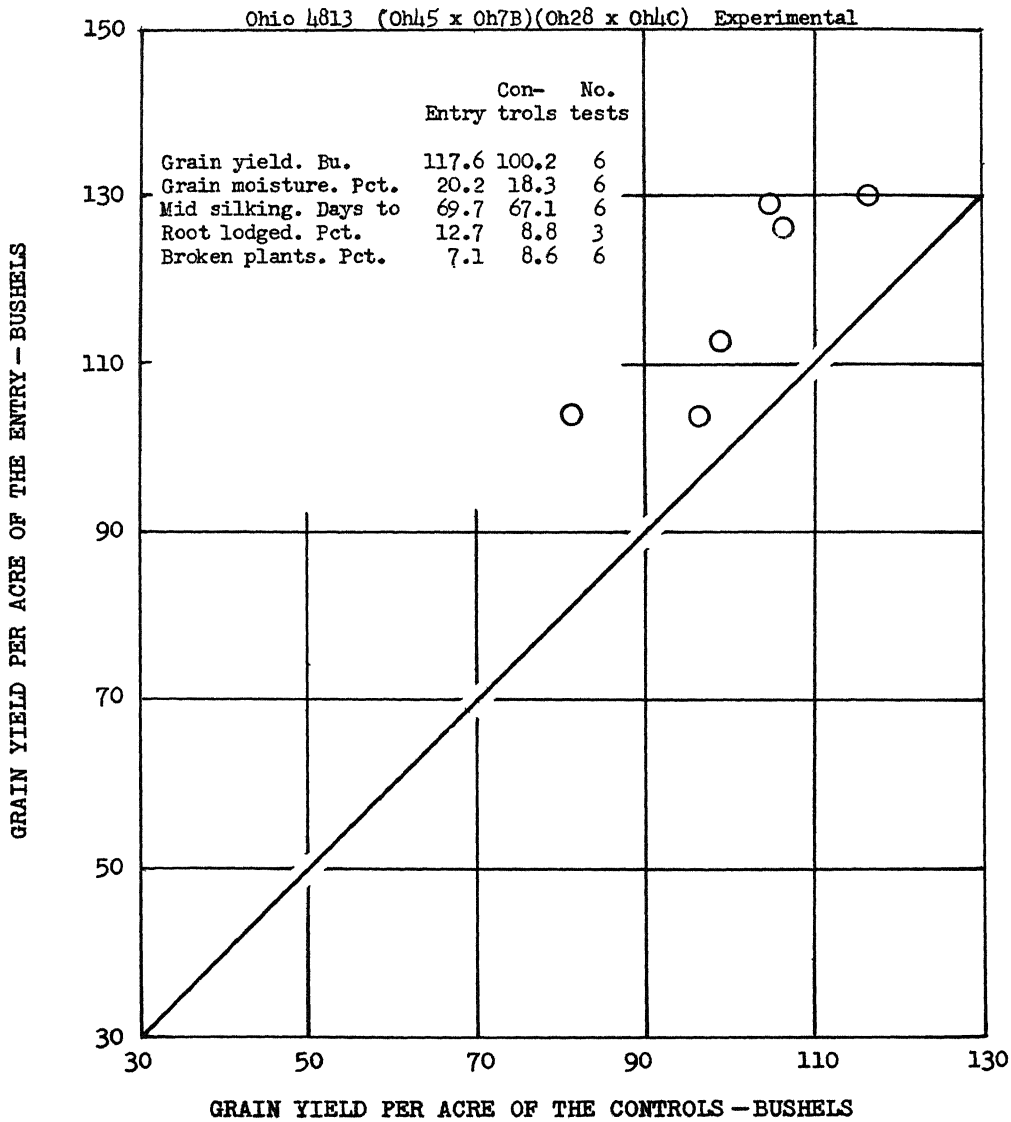


Southern Ohio

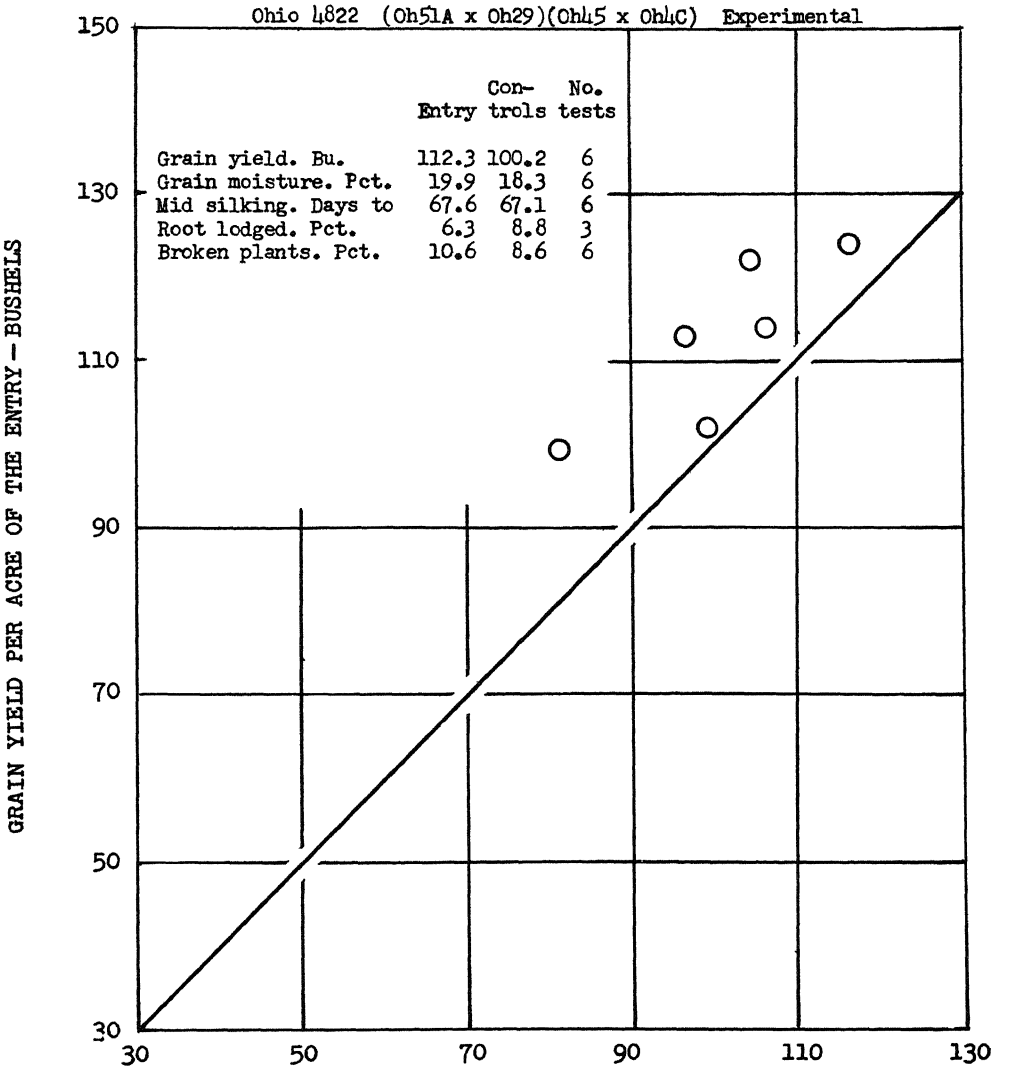
Ohio 4808 (Oh51A x Oh4C)(Oh45 x Oh28) Experimental



Southern Ohio

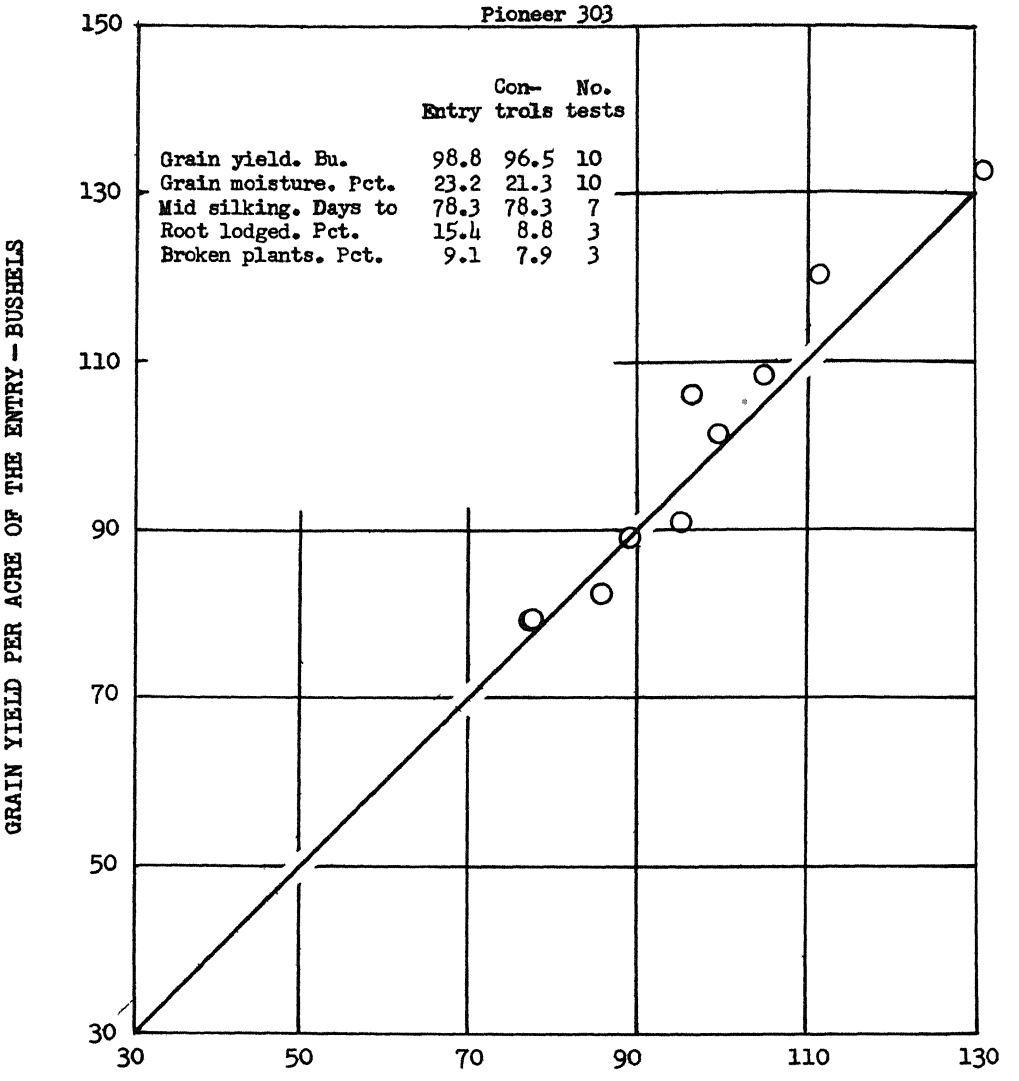


Southern Ohio



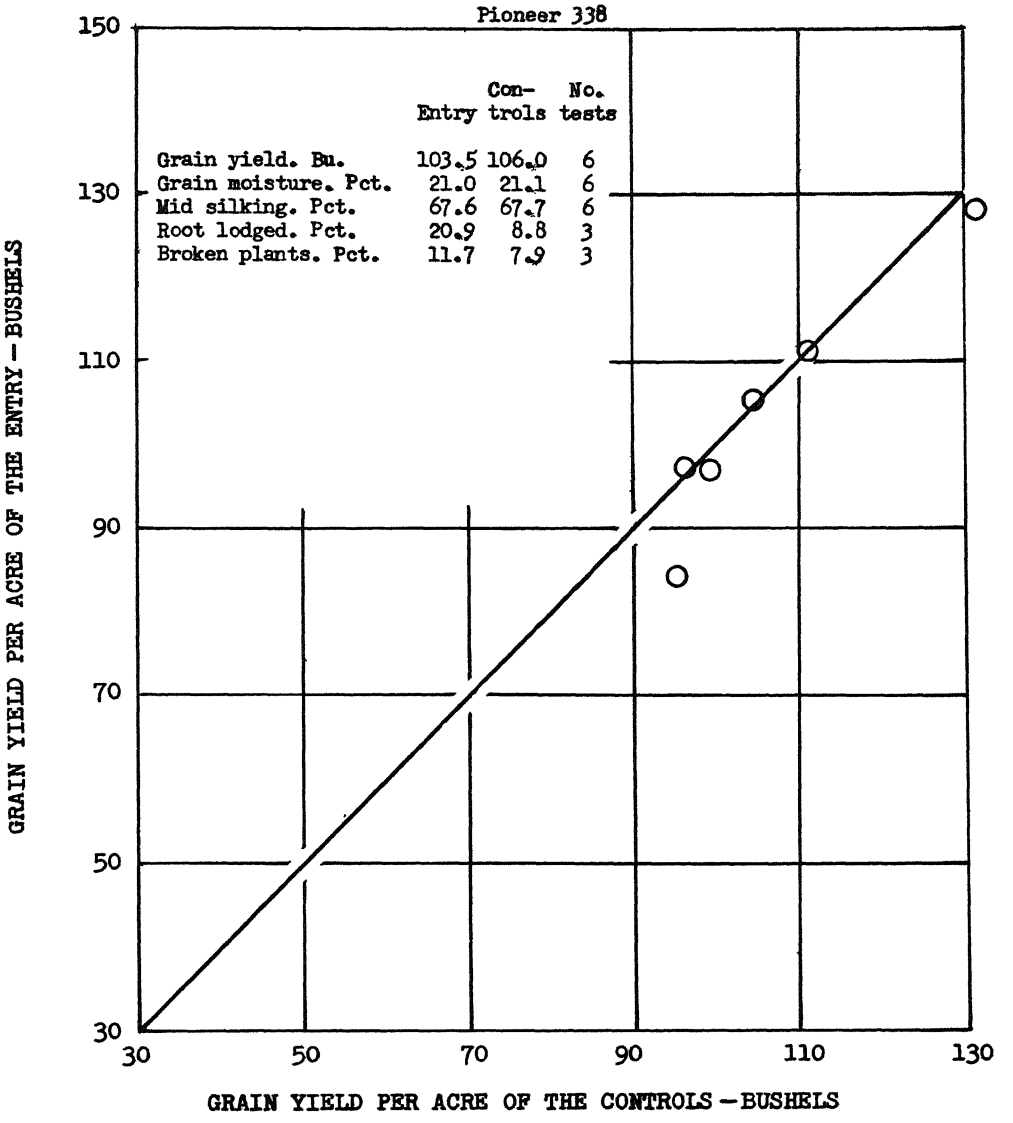
Southern Ohio

Pioneer 303



Southern Ohio

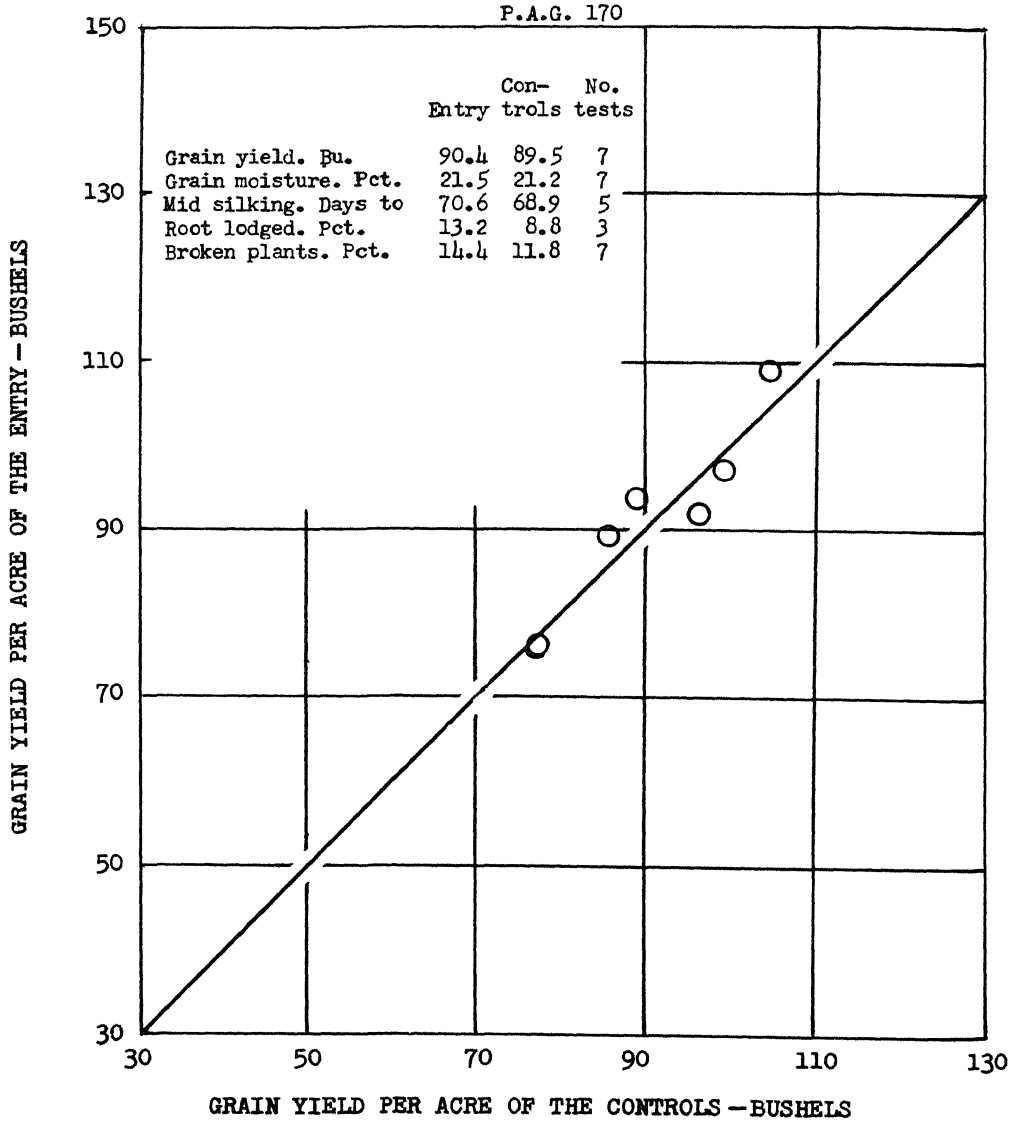
Pioneer 338



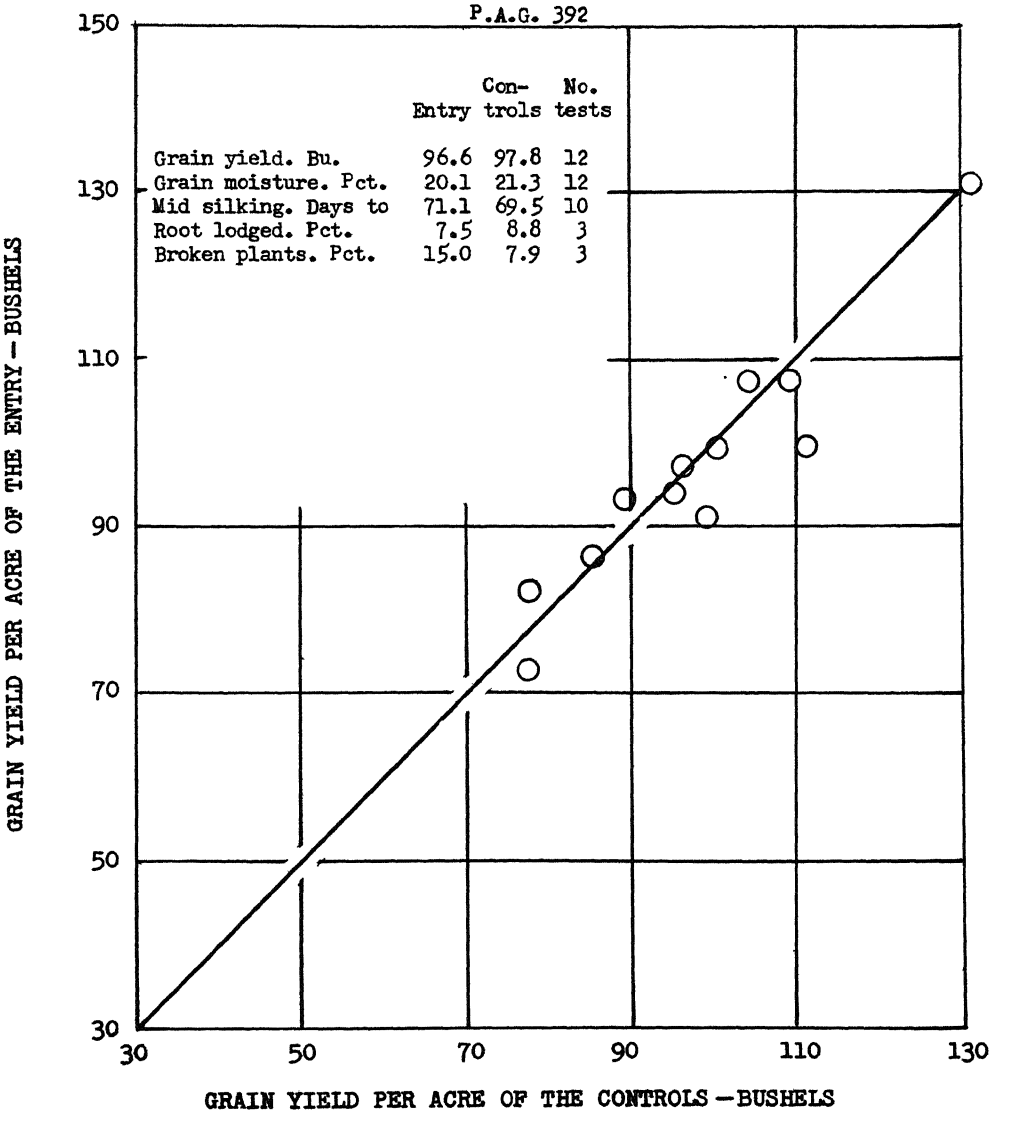
	Entry	Con-trols	No. tests
Grain yield. Bu.	103.5	106.0	6
Grain moisture. Pct.	21.0	21.1	6
Mid silking. Pct.	67.6	67.7	6
Root lodged. Pct.	20.9	8.8	3
Broken plants. Pct.	11.7	7.9	3

Southern Ohio

P.A.G. 170

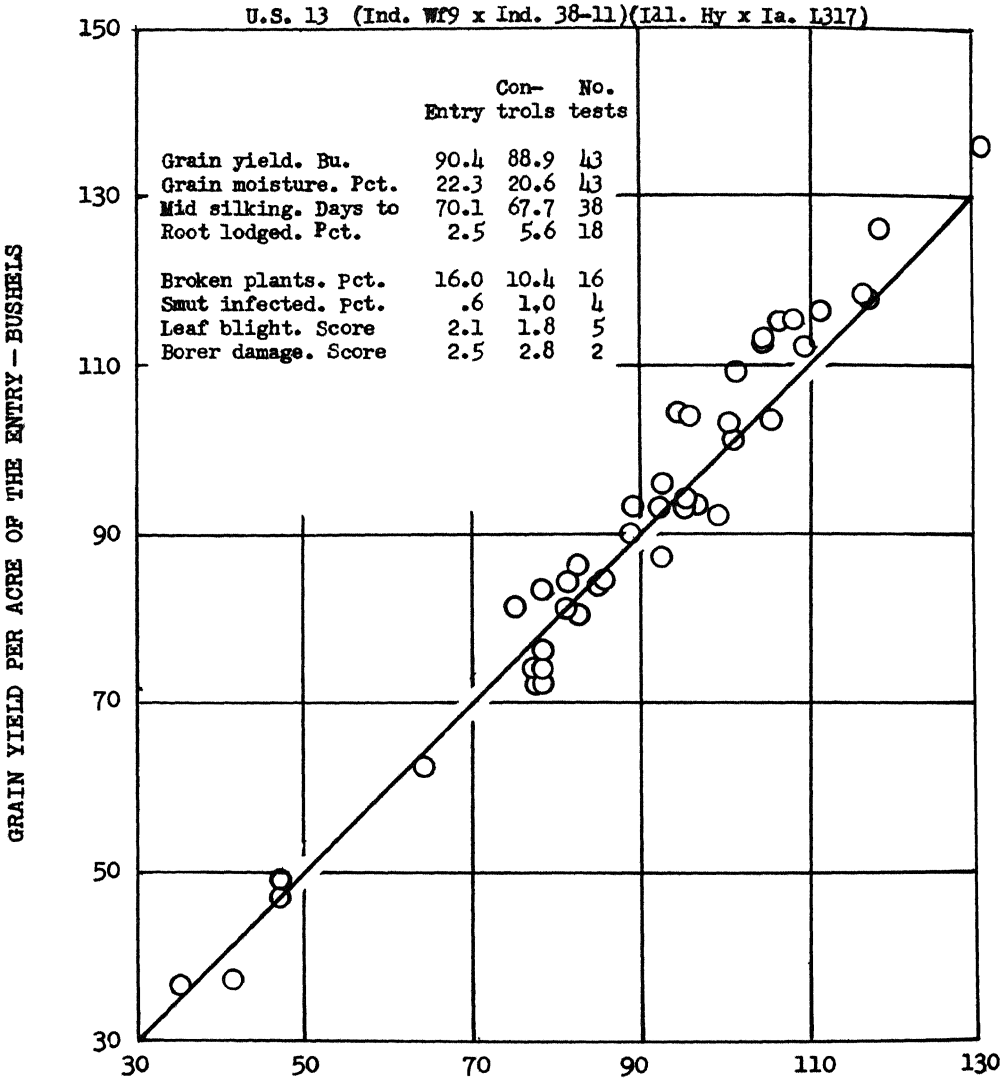


Southern Ohio



Southern Ohio

U.S. 13 (Ind. Wf9 x Ind. 38-11)(Ill. Hy x Ia. L317)



	Entry	Con-trols	No. tests
Grain yield. Bu.	90.4	88.9	43
Grain moisture. Pct.	22.3	20.6	43
Mid silking. Days to	70.1	67.7	38
Root lodged. Pct.	2.5	5.6	18
Broken plants. Pct.	16.0	10.4	16
Smut infected. Pct.	.6	1.0	4
Leaf blight. Score	2.1	1.8	5
Borer damage. Score	2.5	2.8	2